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NEWS ISSUE—MARCH 25, 1948

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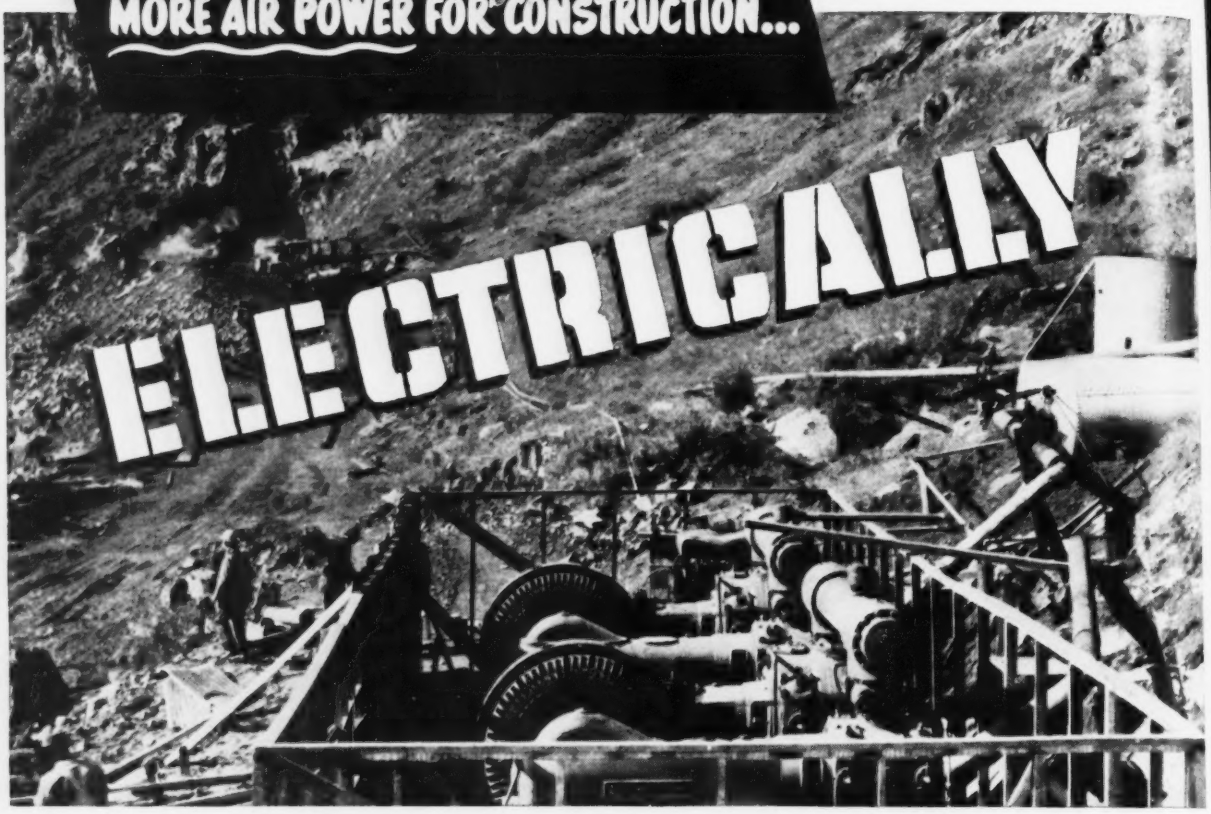

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GENERAL ELECTRIC

655-65

News of the Week

ENGINEERING NEWS-RECORD • MARCH 25, 1948 • VOLUME 140 • NUMBER 13

House committee approves new federal-aid roads funds

Measure would provide $500,000,000 for 1950-52 fiscal years, for both rural and urban highways

Some $500,000,000 of federal-aid funds for highways for each of the fiscal years 1950, 1951, and 1952 was recommended this week by the House Committee on Public Works, following extensive hearings by the subcommittee on roads.

A bill (H. R. 5888) authorizing the appropriation of this money has been placed before the House as a whole and early action is anticipated.

A special section that would have redefined the terms "secondary and feeder roads" and "principal secondary and feeder roads" to include all county and township roads irrespective of the volume of traffic (*ENR* March 18, vol. p. 406) was eliminated from the committee-approved bill.

In addition to the aid to the states, the bill also provides a considerable amount of other construction money for each of the three fiscal years mentioned. These funds include: Forest highways, $25,000,000; forest development roads and trails, $12,500,000; national park road improvements, $4,250,000; maintenance and construction of roads leading to national parks, $10,000,000; and access roads to Indian reservations, $6,000,000.

Apportionment of funds

Of the $500,000,000 of yearly aid to the states, 45 percent or $225,000,000 is earmarked for projects on the federal aid (primary) system, 30 percent or $150,000,000 for secondary and feeder roads, and 25 percent or $125,000,000 for projects on the federal-aid system in urban areas.

Highway groups in Washington are pleased with the fact that the bill extends the federal aid for three years, rather than two years as was recommended by the House subcommittee on public roads in its report to the full public works committee a few days previously. These interests are also pleased with the provision that the money for any one year is made available for three years after that particular year, rather than the two-year grace period provided in the present legislation.

It is to be noted that neither the new bill nor the present federal-aid law —The highway Act of 1944—authorize the appropriation of funds for the fiscal year 1949, which begins July 1, except what will be available as carryover. These carryover funds are considered sufficient for all states to continue their construction programs without interruption, in view of the large amounts of federal assistance as yet unobligated by the states.

Allocation of the new money, when appropriated, will be in accordance with the 1944 act (*ENR* Nov. 30, 1944, vol. p. 665). Under this bill, funds for work on the federal-aid primary system will be apportioned on the basis of one-third on total population, one-third on total post-road mileage, and one-third on area. Aid for projects on secondary and feeder roads is made available on the basis of one-third of rural population, one-third post-road mileage, and one-third on area.

Aid for projects on highways in urban areas is to be apportioned among the states in the ratio which the population in municipalities and other urban places of 5,000 or more in each state bears to the total urban population of the U. S.

CAA changes rules for airport program

Important changes have been made by the Civil Aeronautics Administration in its regulations for advinistering its $1,000,000,000 federal-aid construction program. One of these changes will permit sponsors to let contracts for construction without competitive bidding, provided approval of the CAA is obtained previous to the contract award.

The new regulations, which become effective May 1, also eliminate the use of several forms employed in the past on construction work. The restriction that jobs costing over $15,000 must be done by contract, rather than force account, remains effective.

As of Feb. 29, some 210 applications for federal-aid grants for construction had been received. These applications call for $19,920,000 of federal money and somewhat more than this amount by the sponsoring groups. Of the requests, 182 applications, calling for a total of $17,700,000 of aid, have been approved by the CAA. These projects include 42 jobs totalling $1,900,000 of federal aid for work on class 1 (small fields), 61 applications for $2,800,000 of assistance on class 2 fields, 64 requests totalling $9,100,000 for class 3 airports, and 15 requests for a total of $3,800,000 for work on class 4 and larger fields.

Federal funds for the huge airport program are being supplied from $45,000,000 Congress appropriated for the fiscal year 1947 and $32,500,000 for the present fiscal year (*ENR* Jan. 8, vol. p. 23). To advance the work further, President Truman in his annual budget message asked for more than $67,000,000, including $40,000,000 for grants to local groups and $23,000,000 for building air navigation facilities (*ENR* Jan. 15, vol. p. 77).

The complete text of the new regulations may be obtained from the Office of Aviation Information, Washington 25, D. C.

Over $1 billion for roads in 1947, PRA estimates

During 1947, an estimated $1,154,000,000 in highway construction was put in place throughout the United States, the Public Roads Administration said last week.

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the engineering and construction front during the week.

Highways—Work has already started in a temporary south approach to the recently destroyed Charles M. Cullen bridge over Indian River Inlet, near *Rehoboth, Delaware*. . . . A $2,755,864 contract for construction of East Highway Bridge superstructure, *Washington, D. C.*, has been awarded to the Bethlehem Steel Co. The bridge is one of two that will replace the 14th Street bridge over the Potomac River . . . The $3,000,000 bond issue for the Pasadena tunnel at *Houston, Tex.*, will be resubmitted to voters April 10.

Public Construction—Bids will be asked for soon on the new Labette County courthouse at *Oswego, Kan.* . . . A $1,800,000 Northern Indiana Hospital for mental patients will be erected at *Westville* . . . Plans are being prepared for a $1,000,000 extension to the state office building at *Hartford, Conn.* . . . Washington State College has awarded contracts of $2,600,000 for a library on the campus at *Pullman* . . . Public buildings being considered for future construction at *Spokane, Wash.*, now total $8,750,000, including schools costing $3,500,000 and a $4,000,000 municipal auditorium. . . . A $3,500,000 emergency building program for the University of Oregon, *Eugene*, has been approved by the state Board of Higher Education. . . . A six-year $17,450,000 building program has been proposed for the University of Florida, *Gainesville* . . . Bids are being asked for a $1,500,000 school for the blind and deaf at *Jackson, Miss.* . . . The University of Toronto, *Toronto, Ont.*, has launched a campaign to provide for its $13,000,000 building program. Recently proposed have been a $1,000,000 addition to the central heating plant, a women's gymnasium a dental building, a school of nursing.

Industrial construction—A permit has been granted to Magnolia Petroleum Co. for a gasoline extraction plant near *Ulysses, Kan.*, to cost about $1,800,000 . . . Work has started by Poplar-Highway Plaza, Inc., on a $5,000,000 suburban shopping center near *Memphis, Tenn.* . . . Westinghouse Electric Co. will build a $10,000,000 plant near *Indianapolis, Ind.* . . . A $7,000,000 regional shopping center on a 22-acre tract is to be built off the Worcester Turnpike near *Framingham, Mass.* . . . The Dominion Bridge Co., Ltd., Lachine, Que., has been awarded the contract for the fabrication and erection of a 500-ft. long bridge with center arch span of 300 ft. over the Saguenay River connecting Arvida and Racine, Que. Designed by Surveyer, Nenniger & Chenevert, Montreal, Que., the bridge will be entirely of aluminum. . . . E. G. M. Cape and Co., Montreal, have been awarded general contract for the construction of a $4,000,000 pulp mill for Fraser Companies, Ltd. at Newcastle, N. B.

Housing—Colony Realty Co. has started five additional 8-unit apartment buildings on Carvel Avenue, *Indianapolis, Ind.* . . . A $5,000,000 housing project will be built on Basin Road, *Wilmington, Del.* . . . Grading has started for the 212-unit, $3,000,000 Twin Oaks apartments on College Avenue, *Atlanta, Ga.* . . . A planned green-belt city of 30,000 people is rising on a 2,500-acre site, 30 miles south of the *Chicago* loop. American Community Builders, creators of the project (temporarily named Park Forest), now have 30 buildings containing 154 rental units under construction. The community will include 679 rental buildings (3,010 living units) and 5,000 homes for sale.

Water and sewers — *Bellingham, Wash.*, has awarded contracts for a $627,100 system of sewers and is opening bids for a $300,000 disposal plant . . . Plans have been completed at *Winston-Salem, N. C.*, for a 13-mile auxiliary water line to the Yadkin River, and plans for the entire waterworks expansion program are expected to be ready within 60 days. . . . The Electric Power Co. of New Jersey, Trenton, N. J., has announced preliminary plans completed for a $195,000,000 water supply system to run from *Belvidere, N. J.*, to *Warrington, Pa.* Ambursen Engineering Corp., New York City, made the surveys, while Stone and Webster Engineering Corp. were consulting engineers. The completed preliminary plans call for construction of dams at Belvidere, Tocks Island and Chestnut Hill and a subsurface 15-ft. gravity feed water conduit to Warrington, north of Philadelphia.

THE COVER PICTURE

Innovations in construction practice to increase worker-productivity are tarpaulin enclosures fitted with flexible plastic "windows".

Introduced in New York City late this winter for cold-weather protection on bricklayers' scaffolds, they were adopted by a number of contractors to expedite completion of housing projects. Their use is said to eliminate shadow-casting electric lights that slow-up work as well as minimize the "depressing effect" felt by bricklayers when they operate in the gloom of an ordinary canvas enclosure.

The "window" tarpulin was developed by the Bentek Corp. of 1253 Atlantic Ave., Brooklyn, N. Y. The photo shows a typical installation on the Marcy Houses Project of the New York City Housing Authority, where John B. Kelly, Inc. is doing the masonry work for the general contractor, Cauldwell-Wingate, Co., N. Y.

To hold new hearing on Wilder Dam height

Vermont residents recently won the first round of their battle to hold the height of Wilder Dam to a maximum of 380 ft. The Senate Public Works Committee asked the Senate to direct the Federal Power Commission to hold a second hearing on the proposal to make the dam—on the Connecticut River—385 ft. high.

Opponents of the plan charged that a dam higher than 380 ft. would cause seepage and make as much as 5,000 acres of land in the Connecticut valley unfit for cultivation.

The Federal Power Commission authorized construction of the power dam by the Bellows Falls Hydro-Electric Corp. on Oct. 31, 1946. A license was issued for the project June 19 of last year. The committee resolution would amend this license to require a re-hearing and review.

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Rail engineers urge improvement work to boost efficiency against emergency

American Railway Engineering Association hears discussions of roads' needs at annual meeting in Chicago

In an atmosphere of fast-moving national events directly affecting the transportation properties which they represent, members of the American Railway Engineering Association met in Chicago for their annual meeting, March 16-18.

They heard speakers stress the urgency of current programs to put the railroads in shape for any emergency, the need for maintaining and expanding current schedules of equipment delivery and railroad betterment.

Within two hours after President Truman's address to Congress on the critical European situation, Clark Hungerford, President of the St. Louis-San Francisco Ry., told the association that "if a national emergency should arise, this nation will find it necessary to turn to the railroad.

"If the railroads are to be able to carry all future loads that may be placed upon them, they must be permitted now to obtain the materials they need to build new equipment and to do the work on their roadways and structures which they were unable to do during the war years. They must be allowed to get these materials even if it means that all of us must go a little while longer without some of the things we would like to have," he said.

Mr. Hungerford, in another part of his address, compared today's railroad operations with the transportation crisis of 1922-23. Since then, he said, the railroads have invested more than $13,500,000,000 in improved plant and facilities, and as a result are doing a "better job today with 550,000 fewer freight cars, 16,000 fewer passenger cars and 22,000 fewer locomotives."

At present, he said, the railroads have on order about $1,000,000,000 worth of new rolling stock — some 120,000 freight cars and 2,500 passenger cars.

The same theme was emphasized by James H. Aydelott, vice president of the American Association of Railroads. "There is scant opportunity when a national emergency arises," Mr. Aydelott said, "for the railroads then to make material progress toward strengthening and expanding their facilities. The railroad industry must take full advantage of the opportunity afforded in peace-time years to advance their research activities and to plow back a sizable share of their earnings into improvements."

Today, he added, the railroads are doing more research than ever before and in more directions. This research is being carried out, he said, not only by the railroads individually and collectively, but also by the manufacturers of the 100,000 different items used in daily railroad operations.

Soil studies

Reporting on stabilization treatment of sliding fills by pressure grouting, Rockwell Smith, roadway engineer of the Association of American Railroads, stated that investigations of the last two years have shown quite conclusively that the bulk of the water that weakens fills is that falling on the track. In some cases, this water can be channeled through the ballast to the fill from a considerable distance. Evidence indicates the possibility of good results from cutoff drainage across the roadway on the upper approach to fills.

C. H. MOTTIER
. . . . New railway engineer head

Describing a number of fills treated by pressure grouting in the last two years, Mr. Smith reported that the work had effected successful stabilization in all cases. He concluded: "Until we are able to offer a more detailed and technical reason for the apparent success of stabilization by pressure grouting, we can say provisionally that its effect is to keep the roadbed dry in those vital areas where movements have occurred or may occur because the roadbed is not dry."

Ralph B. Peck, research professor of soil mechanics, University of Illinois, discussed the results of a questionnaire survey to obtain information about retaining walls and abutments that had performed unsatisfactorily, particularly those that had failed or experienced considerable movement.

Information developed by the questionnaire still is being studied and analyzed, but Mr. Peck offered four rather definite conclusions: (1) Failure or progressive movement of retaining walls and abutments is relatively uncommon; (2) unsatisfactory behavior is rare unless the subsoil of the wall, or its backfill, or both, contains clays or clay-like materials; (3) it is doubtful if the effects of vibration due to traffic on granular backfills are of serious importance; (4) unsuccessful behavior of walls has been due primarily to misjudgment of the foundation conditions.

In a preliminary report on use of soil pressure cells with electrical recording equipment for measurement of pressures in railroad subgrades under moving loads, a subcommittee of the association's roadway and ballast committee said the AAR cell, which is simplest in construction, gave results as consistent as the more elaborate cells. Although the tests so far made afford only an approximate evaluation of the effect of impact on soil pressure, they indicate that considerable impact effect is present.

New officers

C. H. Mottier, vice president and chief engineer, Illinois Central R. R., Chicago, was elected president of the association for the coming year. F. S. Schwinn, assistant chief engineer, Missouri Pacific Lines, Houston, Tex., moved up to senior vice president and G. L. Sitton, assistant chief engineer, Southern Railway System, Washington, D. C., was elected to succeed him.

In his presidential address to the 1,700 delegates, Armstrong Chinn, the retiring president reported a total membership of 2,334—largest since 1932. He noted an AAR appropriation for this year of nearly $300,000 allotted to 24 different projects.

Large turnover in engineers

A large turnover in engineering graduates engaged by the railroads was reported by the Committee on Cooperative Relations with the Universities. Of 130 graduates employed in 1946, only 88 remained on Aug. 1, 1947. Chief reasons included higher pay in other industries and lack of opportunity for advancement on the railroads. The average salary paid in the first half of 1947 was $256 a month, with a minimum of $200. A study of all civil engineering graduates from 53 schools showed an average of $253, a minimum of $175.

DEVELOPMENTS BEYOND U. S. BORDERS

Digested from reports by Engineering News-Record correspondents and the McGraw-Hill World News Bureau

Philippine Republic plans $88 million hydro power program—Venezuela asks bids on port work—France plans extensive railroad work—Other foreign news

Philippine Republic—A 5-year $88,000,000 hydro-electric power program is now approaching the stage where construction can begin, according to Filemon C. Rodriguez, manager of the National Power Corporation of the Philippines. Mr. Rodriguez recently completed a visit to the United States to arrange for financing the work.

The program is the first step in an overall plan that calls for a vast construction program. General plans were prepared for the National Power Corporation by the Westinghouse Electric International Co. of New York City, and provide for an installed capacity of 238,000 kw., as well as other construction to firm present hydro plants.

American construction firms and engineers will aid in preparation of detailed plans and specifications.

The biggest of the projects planned calls for development of the Agno and Toboy rivers on Luzon Island, north of the city of Manila. With an estimated cost of $59,000,000, this project would include construction of the first two of an eventual eight dams to utilize a fall of 2,293 ft. and permit an ultimate installed capacity of 424,000 kw. The first phase would include construction of Ambuklao Dam on the Agno River, in the mountains of Benguet Province. The dam would be an earth and rock fill structure 330-ft. high. A power house downstream would obtain a 407-ft. head.

Several miles downstream from Ambuklao Dam, at the junction of the Twin River with the Agno, a second structure, of equal height and similar design, will be built. This dam, to be known as Itogon Dam, would provide a 458-ft. head for two 43,000-kw. units.

Six other dams for the Agno and Toboy rivers would be built in subsequent programs, and most of them would be somewhat smaller structures.

Another big project calls for utilizing the 2,300-ft. fall of the Agus River between Lake Lanao and the sea on Mindanao Island with an ultimate development of 736,000 kw. The river develops the 2,300-ft. head in less than 24 miles. This project calls for the ultimate construction of seven dams, but only two would be built under the present program. One of these would be a low regulation dam where the river leaves the lake and the other would be near the sea, to be known as Maria Cristina Dam.

This dam would be a low structure, upstream from the Maria Cristina Falls, expected to cost $11,700,000.

Still another important part of the program is construction of a chemical fertilizer plant to produce 126,000 tons of ammonium sulphate fertilizer annually at the Maria Cristina development.

Mr. Rodriguez, who was employed by the U. S. Bureau of Reclamation during 1930 and handled hydraulic work for the Philippine Department of Public Works for a number of years, is expected to return to the United States early in April to aid the Philippine Embassy in the work of financing the development.

Robert Russell, project development manager for the Westinghouse Electric International Co., was in charge of preparing the general report on the comprehensive plan. He was assisted by L. Gray Marshall, technical coordinator for the same firm; M. G. Salzman, consulting hydraulic engineer with Ebasco Services, Inc.; R. S. Quick, hydraulic engineer for the Baldwin Locomotive Works; and Orman Strange, construction engineer with Morrison-Knudsen Co. An independent review of the data and survey was made by A. V. Karpov, consulting engineer of Philadelphia.

Ports and Harbors

Venezuela—U. S. contractors have been invited to submit their qualifications for bidding at some later date on a Venezuelan project for improvement of the harbor of Maracaibo. The improvement project involves some 70,000,000 cu.yd. of dredging and 2,000,000 cu.yd. of rock jetty construction.

About 6,000,000 cu.yd. of dredging will be in unprotected waters, and probably will require the use of hopper dredges. Contracts will require an average rate of about 2,000,000 cu.yd. per month on the overall job, with a 3-mile disposal haul. It is expected that suction dredges can be used on the 64,000,000 cu.yd. of work in protected waters.

Jetty construction includes two jetties in unprotected water, one 15,000 ft. long to be built in water depths of 0 to 24 ft., and the second of about the same length, but with a somewhat smaller cross section. Suitable stone for the jetty work is available by a haul of 125 sea miles or 17 land miles.

Interested contractors were asked to submit statements of their experience and financial condition to Direccion de Vias de Communicacion, Ministry of Public Works, Caracas, Venezuela.

Discuss Industry Plans—Officials of the Instituto de Fomento Industriale, an agency of the Colombian government, and the H. K. Ferguson Co., of New York City, confer on plans for a $9,000,000 alkali industry to be created in the Bogota area. Left to right above are: Carlos Gomez, director of salt properties for the Bank of Colombia; John Oman, III, president of the H. K. Ferguson Co., and Juan D. Ceballos, director of the institute.

Puerto Rico—Improvements to the port of Arecibo, consisting of about $1,000,000 of work, will be carried on under a plan recently approved which makes it possible for private interests to invest money in capital stock of the Puerto Rico Transportation Authority.

Establishing a precedent, business men of Arecibo will contribute funds to make up the $1,000,000 needed for the project which will convert the port to a deep water station.

The insular legislature some time ago allocated public funds amounting to $500,000 for the work, but the authority could not continue the job until the legislature was in a position to appropriate the remaining funds. Under the present arrangement, business interests will make up the difference.

Brazil—Construction of the new Caju Pier in the harbor of Rio de Janeiro has started and should be finished early in 1949. Three local firms are building the pier, at a cost of $10,000,000.

The pier is being built for the Standard Oil Co. of Brazil.

The Brazilian state of Espirito Santo was authorized by the federal government to attempt to negotiate a loan in the United States for $8,000,000, to be used in improving the port of Vitoria, and for doing other work in the state. Vitoria is the main sea outlet for iron ore from the Itabira region.

Transport

France—Electrification of the Paris-Marseille railroad line, one of the most important in the French communication system—will be completed as far as Lyon within two years, the Railways' Administrative Council reported last week.

The Lyon-Marseille section will be electrified next, and then the Lyon-Geneva line and other main routes. The new section will be added to the 2,200 miles of electrified trackage now in service in France, most of which is located in southern France.

Meanwhile, the French Supply Council announced that it has purchased $213,000,000 worth of American made railway equipment in the last few years, as well as $45,000,000 worth of machinery for coastal harbors, supplies for transportation on inland waterways, and construction equipment for miscellaneous public works.

The commission said that delivery had already been made on between 80 and 90 percent of the purchases.

Principal railroad equipment obtained includes 500 steam locomotives, 70 diesel locomotives, nearly 37,000 railway cars and extensive miscellaneous equipment.

India—The Indian Government has budgeted an expenditure of about $160,000,000 for railway construction and equipment for the coming year, John Matthai, Minister of Transport, said recently. The money will be used to purchase replacement rolling stock and for structural work to build the important railway link with Assam.

PERSPECTIVE . . . .

Argentina drops the pilot

The recent action in which the Argentine government and Maj. Gen. Royal B. Lord, World Wide Development Corporation, parted company after one year provides an interesting sidelight on the conditions surrounding work by U. S. engineers in some foreign countries.

The announcement (*ENR*, March 11, vol. p. 386) made both by General Lord and by the Argentine government, brought to an end a project that has been subject to both criticism and praise. The engineering mission (known as the Commission Tecnica Norteamericana) suffered what can be considered a setback to U. S. prestige in Argentina.

According to General Lord's own version of events, he went to Argentina in the latter part of 1946 on private business and during that time met President Peron and was asked to bring a mission of U. S. engineers to Argentina. On Feb. 1, 1947, he was given a one-year contract at a reported $1,000,000.

A former staff officer with the U. S. Army in Europe, General Lord returned to the United States and selected a group of 15 engineers, most of them with long experience with the U. S. Army Engineer Corps. These men arrived in Argentina from March until June, 1947, and were set up in offices in the same building with the Argentine Bureau of Water and Electric Energy, a part of the Ministry of Industry and Commerce. President Peron gave orders that all departments of the Argentine government were to consult with the U. S. men on all construction.

It became apparent very quickly that difficulties in this relationship were bound to develop. The engineers found that the government departments—while very cordial—failed to provide sufficient data to make proper studies, and provided what data they did have at such a late date that it was not possible to take advantage of any recommendations made by the engineers. Additionally, the Argentine and U. S. engineers—while more or less on common ground in engineering matters—found the political conditions completely puzzling to one another. The North Americans were at a loss to understand the Argentine work schedules and purchase programs.

In an interview with *Engineering News-Record*, General Lord said last week that he now felt that Argentina could accomplish no more than 25 percent of the construction outlined in the five-year plan. Basing that estimate on the progress made during the first year, he said it might have been more realistic to take the best record of construction in a previous 5-year period and then tack on an extra 25 percent as a goal.

(The 5-year plan includes a program for construction of nine hydroelectric projects and studies and designs for another eleven hydro projects on which construction would be started during the period of the plan. This would have increased Argentine's hydro power from 45,000 kw. to 1,400,000 kw.)

Practically no progress on the hydro program has been made. In other fields, such as sanitary engineering and road construction, good progress is being made, but recommendations by one of General Lord's experts that modern sewage disposal plants be planned for Buenos Aires (which has a population of more than 3,000,000), were dropped without serious consideration.

The withdrawal of the Lord group comes at a time when many U. S. engineers and construction men are becoming disillusioned about prospects for work in the Argentine. Companies maintaining offices in the country and others have failed to obtain important construction contracts despite having kept full-time men in Buenos Aires. It is true, of course, that a very considerable quantity of capital goods has been purchased in the United States, but construction work has largely gone to local or European firms which do not demand to be paid in dollars.

Random Lines *from an editor's notebook . . .*

. . . In which is given an account of Donald C. Ford, who combines the duties of city engineer of Michigan City, Ind., with those of pastor of an Indiana church

For six days each week, he is City Engineer Donald C. Ford, serving Michigan City, Ind.—a bustling manufacturing center of some 30,000 persons 30 miles east of Chicago.

On Sunday, he is the Rev. Donald C. Ford, serving God as a minister of the Christian Church at suburban Wanatah, or conducting services in the huge Christian Church he himself built in Michigan City.

Versatility of interests has made Mr. Ford successively a farmer, engineer, contractor, teacher and clergyman. Eldest son of a Clark County, Ill., farmer, he spent summers in his youth with an uncle who was city engineer at Michigan City. By the time young Ford was 17, he was an assistant to his uncle and an engineering student at Ohio Northern University. Graduated from the university in 1910, he joined the Southwest Engineering Co. at Oklahoma City, Okla., and a year later was appointed to the engineering department of the city of Tulsa. After nearly a year there, he joined the city engineer's office at Gary, Ind., becoming for three years superintendent of construction on a million-dollar sewer expansion program.

. . *Engineer-Minister*

Enters ministry

At Gary, his second occupation came into being. Near his home was a small frame Christian Church, which one Sunday found its pulpit vacant. Of a religious family, Mr. Ford took over the pulpit temporarily, and proved himself so acceptable that within a short time he was ordained by the state Christian Church organization now part of the Congregational — Christian denomination. For the remainder of his tenure in Gary, he was pastor as well as engineer.

Not satisfied with two occupations, he began studying for a teacher's degree at Tri-State College, Angola, Ind., in 1914, took a degree in four years and within another year took a master's degree. He supported himself and his growing family on a tiny income derived from serving three country churches near the college town.

During the first World War he was an Army chaplain, and shortly after his release from service took over a small church in Michigan City, with a congregation of about 100 and an annual budget of about $1,500.

Shortly after taking over this church, he was offered the job of city engineer for Michigan City, and to stretch his meager income he accepted the appointment. He made an immediate success of his position, and when the city-manager system was introduced some years later, he was one of the few appointees of the former administration who was kept in office.

Offered city post

Later, still keeping his ministerial standing, Mr. Ford left the city government and founded his own company—the Ford Construction Co.—which undertook a number of highway projects around Grand Rapids, Mich. Although he lived on the job, he continued to commute to Michigan City to serve his parish on week-ends. As a private contractor, Ford and his firm paved many of Michigan City's streets and put in miles of sewers in nearby Mishawaka, Ind.

By 1941, he felt his engineering business and his church were each so large that he must give up either one or the other. The frame church had grown into a stately brick structure (which he had largely built himself) and the parish had increased from 100 members to 1,500. The budget had risen to an annual figure of $15,000.

An offer of the pastorate of the Christian Church at nearby Wanatah, Ind., solved his problem. He resigned as minister of the larger Michigan City church to give his parishioners the services of a full-time pastor and took over the smaller parish. At about the same time he abandoned the Ford Construction Co. and became construction superintendent for Barnes Brothers, Chicago, contractors.

Within a year, war had broken out and he became chief construction engineer for Barnes on several of the firm's housing projects, continuing his ministrp at Wanatah on week-ends.

On Jan. 1, 1943, a Democratic administration took over the government of Michigan City and Mr. Ford was offered the city-engineer's post again. Five years later that administration was swept from office, but the new regime asked the minister-engineer to remain.

On Jan. 1 of this year he resigned as minister of the Wanatah church to take on a religious pioneering job at Niles, Mich., 30 miles away. The tiny congregation there had neither minister nor church. Mr. Ford agreed to be the one and build the other.

Two of his three sons are in the ministry, and the third has his own engineering firm in Michigan City.—*E.E.H.*

State of Iowa starts biggest building program

With a $33,000,000 program under way, Iowa has made a start on what officials say is the state's largest public construction program. Contracts for $5,530,000 of work at various state institutions are under way or completed, and the speed of the remainder of the program will depend to some extent on building costs, the availability of materials and skilled labor.

The building program is possible because of $22,000,000 set aside by the last three state legislatures to provide needed improvements at state educational, hospital, penal and juvenile institutions.

Another $9,000,000 is being provided by board of education special funds for dormitories.

The program got started in September 1945 with several minor improvements at the 14 hospital, penal and juvenile institutions operated by the state Board of Control. Another $3,766,000 worth of improvements is actually under way at the five state educational institutions and the Oakdale tuberculosis sanitorium.

A special legislative interim committee is expected to call for bids soon on the new $2,600,000 state office building to be erected on the statehouse grounds at Des Moines.

New bargaining group urges members to register as professional engineers

National Professional Association of Engineers, Architects and Scientists activated at Portland, Ore., meeting

Engineer and architect members of the newly-formed National Professional Association of Engineers, Architects and Scientists should register under the laws of their respective states as soon as possible, founding members decided as they formally launched the new organization last week.

Meeting at Portland, Ore., March 18-20, representatives of five Pacific Coast professional groups ratified provisions of a national constitution for the NPAEAS—a group they hope to make a nation-wide bargaining organization to assist professionals in their dealings with employers (*ENR* March 4, vol. p. 333).

The association will negotiate contracts with employers operating over a larger territory than that served by any member group; conduct studies on salaries and job classifications and assemble and disseminate information on collective bargaining matters, among other activities.

Elected to head the new group in its first active year was Sterling S. Green, of Los Angeles, Calif., who has served as temporary president until the Portland meeting. Other officers are: Oscar G. Goldman, Los Angeles, vice-president, and Donald B. Slawson, Portland, Ore., secretary-treasurer. Directors are R. W. Hutchinson of Sacramento, Calif., and R. A. Henning, Seattle.

After ratifying provisions of the constitution, delegates approved a series of resolutions, including one urging all members to register in their states as soon as possible—a move to insure the professional caliber of the organization. Another resolution directed that each officer of the association shall qualify under the Taft-Hartley Act, by filing the required non-communist affidavit.

Other resolutions encouraged affiliation of interested organizations having a like purpose, and directed that the association devote its efforts "to the fullest extent" to professional employees in public employment with the aim of procuring for these employees all of the benefits that may be obtained for engineers in private employment."

Principal delegates attending the meeting, and the groups they represented, included: Ben Collins and R. A. Jones of the Southern California Professional Engineering Association; Oscar G. Goldman, of the San Francisco Area Group of Professional Employees; Orland E. Buckius, Sacramento Group of Professional Engineering Employees; Kenneth G. Tower of the Engineers Guild of Oregon, and Mr. Henning, of the Seattle Professional Engineering Employees Association. The five groups above were those that originally ratified the national constitution.

Two other groups sent representatives: R. S. Rasmussen, of the Association of Industrial Scientists; and J. T. Horeczy, of the Society of Professional Chemists and Engineers.

$80 million oil plant to be built in Kansas

The Stanolind Oil and Gas Co., has finally settled on a location for its new $80,000,000 plant to be erected near the Hugoton natural gas field. Garden City, Kan., has been chosen as the site, according to L. L. Smith, of Tulsa.

The plant will be used in the manufacture of synthetic petroleum products from natural gas.

Contract awards will be made soon and actual construction is scheduled to start late in the summer or fall.

February report shows drop in construction

Construction activity during February continued a seasonal downtrend, dropping 10 percent under January, the Bureau of Labor Statistics said last week.

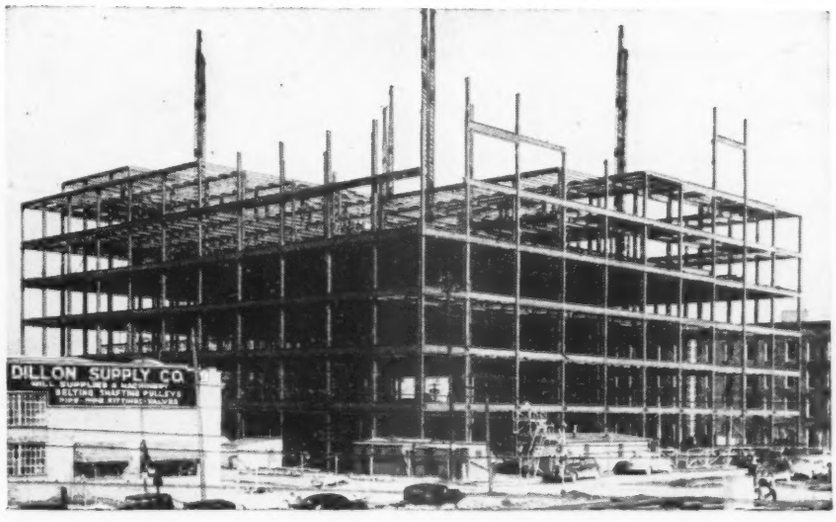
Expenditures were listed as $1,100,000,000 for all types of construction work put in place during February, which was $123,000,000 less than in January.

Snow promises relief of New Mexico drouth

Above-normal snowfalls in Colorado and New Mexico mountains during February have improved the irrigation water supply outlook in New Mexico and nearby states, according to a snow report issued by the Colorado A. and M. College.

The college's February report had termed the outlook "critical" with water supplies below normal in most areas. By March 1, however, the situation had changed to an above normal outlook for many areas, excepting in the Chama River watershed which supplies water for the El Vado reservoir of the Middle Rio Grande Conservancy District.

Snowfall during February has brought the snow cover on headwaters of the Rio Grande and its main tributaries to the greatest in three years.



Cigarette Factory—The Chesterfield Cigarette division of the Liggett and Meyers Tobacco Co will locate manufacturing processes in this structure at Durham, N. C. The 6-story-and-basement building will be 218 x 234 ft., finished with face brick and limestone trim, and all interior walls will be of glazed tile. The building will be fully air-conditioned. Lockwood Greene Engineers, Inc., of New York City, is architect-engineer on the project, and J. A. Jones Const. Co., Charlotte, N. C., is general contractor.

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

Summarizing current activities in city engineering and construction throughout the country.

Building dollar-volume rises in cities—Push freeway programs—Cities appoint heads for smoke-control campaigns—Albuquerque consolidates departments—Other municipal affairs

City building construction, measured by building permits and federal contracts, last year amounted to $5,500,000,000—an increase of 17 percent over 1946—the U. S. Bureau of Labor Statistics said last week.

Urban building rose steadily from $266,000,000 in January, 1947, to a peak of $603,000,000 in October, falling off somewhat in the last two months.

Privately-financed housing accounted for nearly $3,000,000,000 of the 1947 figure—an increase of 35 percent over the preceding year, largely because of higher construction costs. There was a substantial rise in rental housing.

Industrial building fell off 19 percent to $320,000,000. Commercial building valuations of $684,000,000 stood at practically the 1946 level. The $388,000,000 for community buildings—churches, hospitals, schools, etc., was double the volume of 1946. Government buildings at $41,000,000 were tripled from 1946 to 1947, while valuation of public works and utility buildings increased 42 percent to $144,000,000.

Traffic control

The problem of easing congested traffic conditions again brought out varied suggested solutions that ranged from superhighways to parking spaces.

Los Angeles, Calif., considered installation of a separate traffic engineering department; Seattle, Wash., approved a bond issue of $4,000,000 to finance improvements to its street lighting system; Mayor James M. Curley of Boston, Mass., ordered plans prepared for a $2,000,000 bridge to replace the 65-year-old Warren bridge between the North Station and Charlestown, and plans were made ready for a 5-story, 1,209-car parking garage and superservice station for downtown Dallas, Tex., to cost $1,000,000.

Howard, Needles, Tammen and Bergendoff of Kansas City, Mo., were retained by Akron, Ohio, to plan a multi-million dollar superhighway from East Market Street to East Cuyahoga Falls Avenue, including a viaduct over the Cuyahoga River valley, and Boston citizens were given more details on the proposed Western Expressway, the fourth of the radial superhighways in the Metropolitan Master Highway Plan. The expressway will have five new bridges across the Charles River.

At Baltimore, Md., the city council authorized construction of a through highway from the southern boundary 1,123 ft. northwest of Annapolis Road to Russell Street near Manokin Street. A plan for a $24,000,000 auto expressway at Montreal, Que., was put before the city council by Planning Director Aime Consineau.

Fourteen of the 15 candidates for mayor of Milwaukee, Wis., appearing on a forum sponsored by the Milwaukee County League of Women Voters, favored municipal parking lots and one-way streets. Highland Park, Mich., planned to set up municipal parking lots along the rear of its 5-block shopping district.

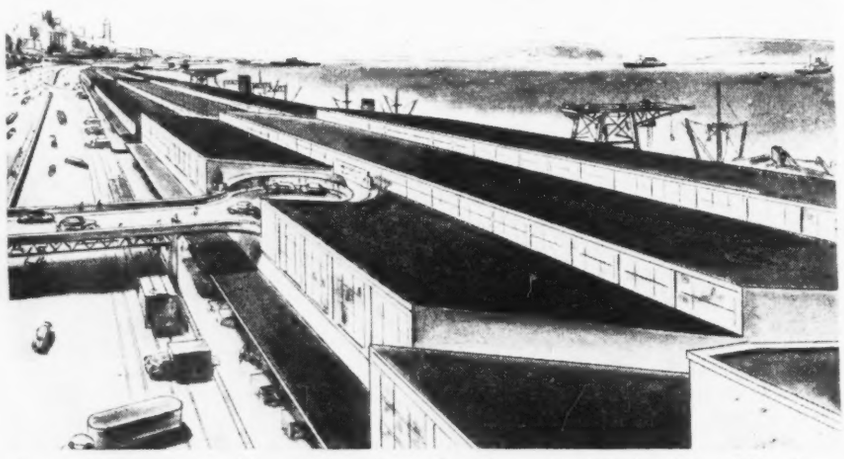
Mayor Lee Price of Tulsa, Okla., said his administration will go through with the plan for more than 17 miles of expressway routing through the city from near Red Fork to the intersection of Admiral Place and Sheridan Road.

Smoke control progress

Control of smoke from factory and home chimneys got continued attention during the week. At Harrisburg, Pa., James E. Campbell was appointed smoke abatement engineer, and seven candidates applied for the position of air pollution control engineer in Milwaukee County, Wis., where a smoke control ordinance is being considered.

The Coal Producers Committee for Smoke Abatement said it would send six investigators to Erie, Pa. to study its smoke nuisance problem. Safety Director Raymond J. Wagner said that operating procedure of Erie's new smoke control ordinance will be drafted from results of this survey.

The supervisors of Los Angeles County, Calif., approved hiring H. F. Johnstone, head of the chemical engineering department of the University of Illinois, as a "smog" specialist, and took under consideration a recommendation to hire Irving P. Krick, of California Institute of Technology, to provide special forecasts of "temperature inversion" and other conditions contributing to heavy industrial pollution of the air. His forecasts would be used to recommend relaxation of industrial burning on unfavorable days.



***Port Plan**—An architect's drawing taken from the Alaska Way side, shows a planned $22,000,000 quay-type development, to improve marine freight facilities at the Port of Seattle, Wash. The plan, prepared under the direction of George Treadwell, chief engineer of the Port of Seattle, calls for an 80-ft. depressed area on the land side of the quays, to provide areas for trucking, and a continuous 20-ft. wide loading platform along the entire length of a 3,500-ft. quay. Trucks and freight cars will also be able to load directly from apron to shipside. An overhead connection to the proposed Alaska Way viaduct would permit access by taxicabs and passenger cars.*

City planning

Albuquerque, N. M., in the throes of a political battle on its city council is putting into effect a reorganization to consolidate some 20 city activities, which formerly were directed by or reported directly to the city manager. The 20 divisions will become 11 departments.

The plan is being put into operation despite the fact that opposition by two of the city's five commissioners was held partly to blame for resignation last month of former City Manager Lyle Rosenberg. Colonel Rosenberg drafted the plan during his brief tenure of nine days (*ENR* March 11, vol. p. 392).

The reorganized departments are: public works and service, fiscal, recreation facilities, administration, water, building, legal, sanitation, police, fire, and public library.

At St. Louis, Mo. an Anti-Slum Commission sub-committee was appointed to work out the details of the proposed $10,000,000 municipal bond issue to finance the purchase and clearance of blighted areas within the city limits. It is headed by James L. Ford, Jr., winner of the St. Louis Award several years ago for his leadership in the city's smoke elimination campaign.

The centering of all city planning at Milwaukee, Wis., in the land commission has been proposed by Stanley Jarz, chairman of that commission.

A tenth area of Philadelphia, Pa., was certified for redevelopment by the City Planning Commission in a report to the Redevelopment Authority. Designated as the Poplar Area, this section covers approximately 302.5 acres, and contains a population of more than 24,200.

Water supply, sewers

It is expected that an increase in water rates will be necessary at Altoona, Pa., to pay for a proposed program of improvements. Rochester, Ind., also considered raising its rates for large water consumers.

San Diego, Calif., will enlarge its sewage treatment plant at a cost of about $2,200,000; Newport, R. I., sought a $2,000,000 bond issue for sewers; plans neared completion for a primary sewage treatment plant at Johnstown, Pa., to cost an estimated $1,125,000, and Richmond, Ind., retained Henry Steeg & Associates, Indianapolis, to plan a proposed $500,000 sewage plant expansion.

Linden and Roselle, N. J., have formed a sewerage authority for a $2,500,000 pollution abatement project.

***Easy Maze**—An air view of one of the principal traffic interchanges of the $3,500,000 Cabrillo freeway near San Diego, Calif., shows how the newly designed intersection provides uninterrupted traffic flow at a four-way intersection. The project was designed by the city and state highway departments, and contractors were Bassick Bros. Construction Co. and Mitry Bros. Construction Co., both of Los Angeles.*

Airports

The Salt Lake City, Utah, Commission has approved a preliminary master plan for $5,000,000 in improvements at the municipal airport to include: Lengthening the north-south runway by 1,200 ft. to make it 6,836 ft. long; addition of instrument runway and taxiway at approximate cost of $1,000,000; construction of new maintenance and administration buildings at approximate $1,000,000 cost; building a second runway parallel to the new instrument runway at cost of $1,000,000, and lengthening of the two other runways from 7,000 ft. to 8,700 ft.

Meanwhile the Metropolitan Airports Commission of Minneapolis and St. Paul, Minn., approved a bond issue of $5,200,000; for expansion of Wold-Chamberlain field for both cities.

Of the authorized sum, $5,000,000 would be used to purchase additional land both at Wold-Chamberlain Field, and other airfields.

A $15,000,000 development program for Logan International Airport in East Boston, Mass., was recently submitted to the Massachusetts legislature. Chief of the projects for 1948-50 is the $6,200,000 terminal building.

Work is expected to be started immediately on the paving of the three main runways at the new airport at Friendship Church, Baltimore, Md. The contract was awarded to C. J. Langenfelder & Son at $3,243,729.35. Taxiways and aprons will be paved, in addition to the three runways.

Four major airlines will move from Akron, Ohio, to the Akron-Canton airport 17 miles from the center of Akron. The municipal airport will be left to private and commercial planes

Atlantic City beaches

The contract for pumping 950,000 cu. yd. of sand to the beaches of Atlantic City, N. J., has been approved. The American Dredging Co., of Philadelphia, Pa., which bid $597,349 already has started work. The beach will be built up to street level, with the city and state each paying half of the $465,500 cost of the sand fill, while the city will pay all of the $131,848 for the extension of storm drains to run under the beach. The city and state will later pay for a 460-ft. "T" jetty.

Boston subways

Rapid progress is being made on the latest subway extension project at Boston, Mass., the $8,500,000 route from Maverick Square in East Boston to the Logan International Airport.

The incline on which the Metropolitan Transit Authority cars will speed to the surface is now more than 25 ft. deep. Work preparatory to tunneling under the Boston & Albany Railroad tracks is also under way. Digging at the Maverick end began last fall.

Plans have been filed with the Massachusette legislature for the construction of a new subway between Park Street and Scolling Square, and for the conversion of Park and Boyston Street stops into one station. The total cost will be $11,432,700.

Navy lists $134 million construction for national defense installations

Survey of work scheduled by Bureau of Yards and Docks shows varied projects—Congress may approve $127 million more

National defense construction projects ranging from missile-testing centers and hospitals to the dehumidifying of warehouses will be carried forward by the Navy Bureau of Yards and Docks during the calendar year of 1948.

A survey of Navy building work, prepared for *Engineering News-Record* last week, shows value of work to be carried forward under existing contracts this year at $106,000,000; with award of contracts for $28,000,000 more now being prepared from funds on hand. Added to these figures is $127,000,000 worth of other work—both overseas and in the United States—which the Navy may initiate this year if Congress approves measures now before it.

These figures compare with some $212,000,000 of similar work carried out in 1947 by general contract and yard labor.

Projects listed

Work to be carried forward includes:

The huge test center for guided missiles at Inyokern, Calif., where more than $86,000,000 has already been spent and contracts totalling about $13,000,000 are now in force. Work now under way includes an aerodynamics field laboratory, electronics installations, and more than $4,000,000 of housing. Haddock Engineers, Oceanside Calif., and Johnson, Drake and Piper have held major contracts here.

Preliminary investigations for a $22,000,000 aeronautical turbine laboratory planned for Trenton, N. J. An architect-engineer contract for this job has already been awarded to Jaros, Raum and Bolles of New York, and Frank Grad Co., Newark, N. J.

A $34,000,000 air missile test center planned for Point Mugu, Cal., for which preliminary studies are being made by Parsons-Aerojet Co., Los Angeles. Construction will include laboratories, shops, offices, housing and other structures required for a large naval station.

A unique $2,000,000 hangar designed for testing electronic devices, under installed conditions, is near completion at the Naval Air Test Center, Patuxent, Md. This structure, for which Tuller Construction Co., Redbank, N. J., is the general contractor, will have steel roof trusses of 300 ft. span. Special electronic shielding includes use of double doors (*ENR* Jan. 16, 1947, vol. p. 80). Between $2,000,000 and $3,000,000 of housing is also being built at this location by John McShain Co., Philadelphia.

Large laboratory for Maryland

Construction under way at the White Oak, Md., Naval Ordnance Laboratory will cost about $15,000,000 and include a 600 x 300-ft. administration and research building. Three supersonic wind tunnels, originally built in Germany, are also being erected (*ENR* Oct. 24, 1946, vol. p. 550), as are a number of special structures (*ENR* Oct. 18, 1945, vol. p. 554). Charles H. Tompkins Co., Washington, D. C., is the general contractor for most of this development.

At the Naval Air Development Station near Johnsville, Pa., a "human centrifuge" of unusual design, calling for $1,250,000 of construction and $1,650,000 of special equipment has been started. The main building, including its foundations, is being built by Ralph S. Herzon, Philadelphia.

Housing projects underway on the mainland include a $2,500,000 job by Virginia Engineering Co., Newport News, Va., at the Naval Amphibious Base at Little Creek, Va., and similar work by T. A. Loving and Co., Goldsboro, N. C., at the Marine Corps Air Station, Cherry Point, N. C. Over 220 dwelling units are now being completed at the Naval Air Technical Training Center, Memphis, Tenn., by John A. Johnson & Sons, Brooklyn, N. Y.

At the Philadelphia Naval Shipyard a sewage collection and treatment system is being built by Conduit and Foundation Co., Philadelphia, at a cost of $2,250,000. Design for a $4,000,000 power plant for Pensacola, Fla., is being prepared by H. A. Kuljian, Philadelphia.

Beaufort hospital advanced

A $9,000,000 hospital project at Beaufort, S. C. that calls for an initial 300 beds with provision for an added 200 beds if desired, is now about 50 percent complete. The main building is primarily of three-story construction with the central section five stories. Entirely air conditioned, the building is of steel-frame designed with brick walls. Thompson and Street of Charlotte, N. C., is general contractor for the project and Harberson, Hough, Livingston and Larson of Philadelphia,

Navy Hospital—A $9,000,000 hospital that will provide 300 beds and permit expansion to an additional 200 beds, is now about 50 percent complete at Beaufort, S. C. Part of an extensive construction program by the Navy's Bureau of Yards and Docks, the building is entirely air-conditioned, and of steel frame design, with brick walls.

and J. M. Pease & Co. Inc., Charlotte, N. C. is the architect-engineer.

Incidental to the berthing of inactive ships of the U. S. fleet, some $70,000,000 of work, including extensive pier construction and dredging that has been in progress during the past couple of years, was virtually completed in 1947. This program extended from the Naval Shipyard at Boston to Green Cove Springs, Fla., and Orange, Texas, and from San Diego, Calif., to Bremerton, Wash. (*ENR* March 14, 1946, vol. p. 379).

Dehumidification projects

Dehumidification of a large number of warehouses storing a variety of materials is another project that has required some pioneer work. Some $1,500,000 of special equipment has been purchased and caulking and related operations in sealing the walls of the structures has cost over $1,000,000. To date, 67 one-story warehouses, each measuring about 200 x 600 ft. have been sealed.

The desire is to maintain the relative humidity in the building at about 40 percent, but this has proven difficult in view of the large volume of some of the structures, plus the fact that the original designs did not contemplate humidity control within the warehouses. Bureau engineers have found that few data are available on how to seal extensive wall space at minimum cost.

Overseas work

Biggest offshore job is the current $60,000,000 construction program on Guam, now more than one-tenth completed.

The program includes a $3,000,000 water system, $7,500,000 of work to provide electric power, $3,250,000 of sanitary sewage facilities, petroleum lines and a tank farm to cost $2,700,000, and a $750,000 highway program.

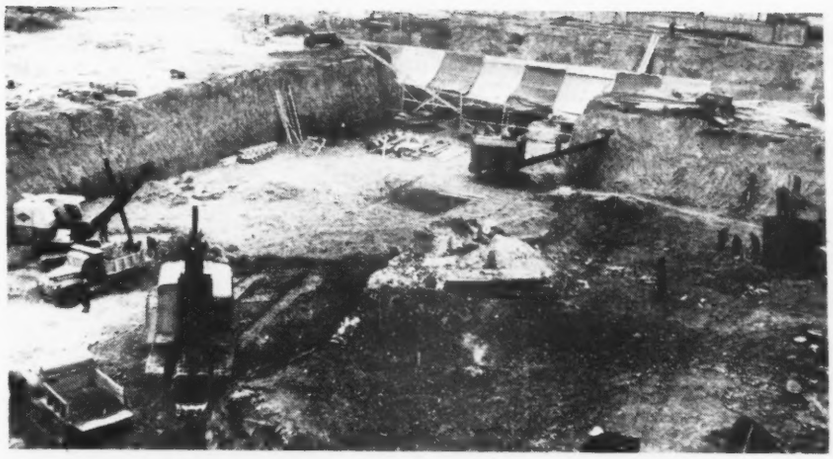
Extensive housing is also being provided at Guam. Barracks for naval and marine personnel will cost $8,300,000, housing for married personnel about $9,000,000, and a camp for civilian workers $3,500,000. A $5,200,000 cold storage center is also under construction, $7,000,000 of work is planned to provide civic buildings for the towns of Agat and Agana, and an additional runway at Orote Field is nearing completion. All of the Guam construction described above is being done by a combination of Pacific Bridge Co., Maxon Construction Co., and Brown & Root, Inc.

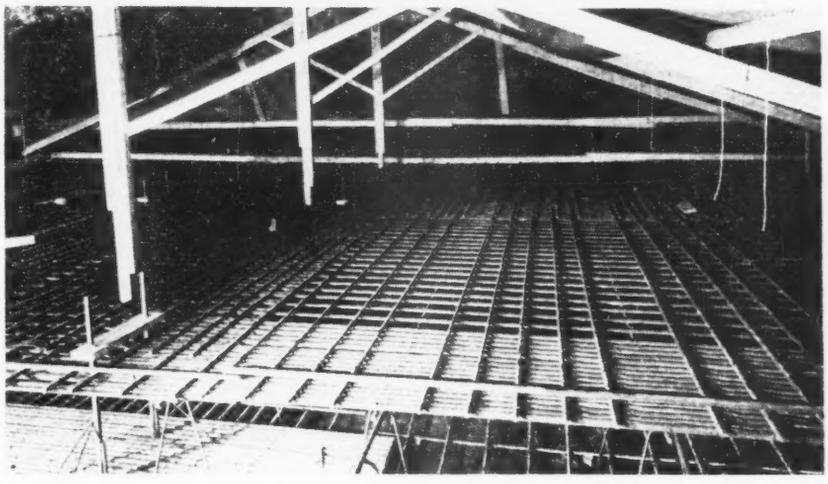
Also on Guam a $15,000,000 dredging program is under way by a combination of Standard Dredging Corp., Hawaiian Dredging Co., McWilliams Dredging Co., and San Francisco Bridge Co. This work is in addition to construction of a breakwater to protect Apra harbor that has been completed at a cost of $10,800,000. J. H. Pomeroy and Co. Inc., San Francisco, was general contractor.

In Hawaii, a number of scattered jobs are in progress and about $5,250,000 of construction started since V-J day is now about completed by the Byrne Organization, Washington, D. C. This firm's contract has, for the most part, covered housing, including outside services, plus miscellaneous operations.

Operations in Alaska include $13,000,000 of construction at the Adak Naval Operating Base, where housing and utilities are being built. Contractors on this work are Johnson, Drake and Piper and Puget Sound Bridge and Dredging Co., of Seattle, Wash.

A $17,000,000 harbor project at Monrovia, Liberia, which has been under way for about two years (*ENR* Oct. 18, 1945, vol. p. 481) was virtually finished in 1947, to give Liberia its first good deep water ship harbor. Raymond Concrete Pile Co. of New York, holds the general contract for this work.





***Inside Job**—A 2-in. thick protection slab and a reinforced concrete foundation mat 34 to 40-in. thick were placed, under winter conditions, for the new $8,000,000 Hospital for Sick Children at Toronto, Ont. A soil bearing value of 2 tons per sq.ft. on hard clay was found to be adequate for support of the building if possibility of plastic flow was eliminated. The bottom of the excavation was carried 2 in. below grade and covered with one foot of straw to prevent frost from entering the ground. Canvas tents were raised over the opened area, steam pipes put down and unit heaters used to prevent temperature in the tents from dropping below freezing. After enclosure, a 2-in. concrete slab was placed as a work floor so that steel could be set without being muddied. G. L. Wallace and C. D. Carruthers, Toronto, are structural engineers; Stone & Webster Engineering Corp. are construction managers and the Foundation Co. of Canada is general contractor.*

MEN AND JOBS

Joseph D. Drury has been appointed engineer of bridge design and associate engineer for the Connecticut State Highway Department, to succeed **John F. Willis,** who was recently appointed engineer of bridges and structures. Other changes include: **Edward S. Lawlor,** resident highway engineer at New Haven, appointed assistant highway engineer in the contracts division; **Malcolm B. Pearce,** resident engineer on the Wilbur Cross Parkway project at East Hartford, named to succeed Mr. Lawlor at New Haven; **R. A. Bennett,** resident engineer at Norwich, appointed to succeed Pearce; **Leo J. Conaty,** Saugatuck, has been appointed senior highway engineer in charge of the Shelton-Derby projects, and **Elton Buck** has been named assistant highway engineer; **Walter C. Maynard,** New Haven has been named assistant highway engineer and will have charge of the West Rock Tunnel project.

J. R. Horner is now regional engineer of the mid-Atlantic regional office of the Structural Clay Products Institute at 1700 Walnut St., Philadelphia, Pa. A civil engineer graduate of the University of Michigan, 1940, Mr. Horner was formerly a project engineer with the Federal Public Housing Authority.

Thomas H. Cutter, chief engineer of the Kentucky State Highway Department since 1936, has become consulting engineer on the department's technical staff, and **Dwight H. Bray,** has succeeded him as chief engineer.

The new county engineer of Jackson County, Kan., is **Sam E. Anderson.**

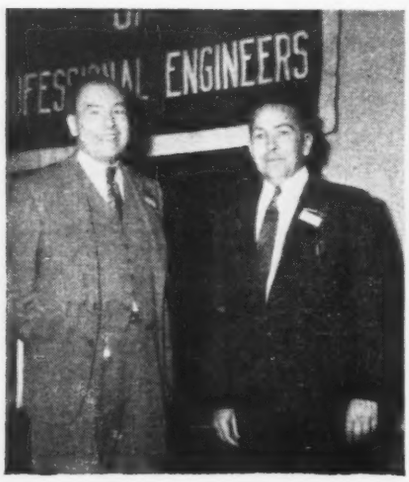
William F. Ryan has been appointed engineering manager of the Stone & Webster Engineering Corp., Boston, Mass. He was assistant engineering manager, and has had a distinguished career in the field of design, construction and plant operation since receiving his degrees at Harvard in 1911 and 1913. He is vice-president of the National Society of Professional Engineers, and prominent in other national and state bodies. He joined Stone & Webster in 1929. **Harry S. Houghton,** chief process engineer, has been named assistant engineering manager. He was educated at Stanford University and has had wide experience in manufacturing, construction, designing and consulting fields. **Arthur Pratt** has been appointed chief process engineer. He was graduated from Stevens Institute of Technology in 1924, and has since been active in the utility and petroleum fields.

R. A. Emerson, of Vancouver, B. C., has been appointed engineer of track for the Canadian Pacific Railway. Assistant district engineer at Vancouver since 1944, he started with the Canadian Pacific as transitman on the Kenora division in 1935 after summer work from 1928 while working his way through University of Manitoba engineering school and Yale University, the latter in 1933 and 1934. In 1939 he became roadmaster on the Portage division at Winnipeg and was appointed division engineer at Brandon in 1943.

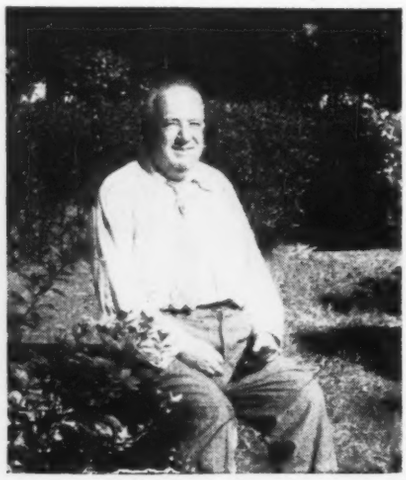
Lt. Col. Warren S. Everett has been appointed assistant to Col. Joseph J. Twitty, district engineer at Mobile, Ala., as chief of the real estate division. He is a West Point graduate and from March to September, 1947, he was chief of the planning and control division, Office of the Chief Engineer, European Command.

Geo. M. Stiers, for the last two years in charge of construction of the Canton Dam, Canton, Okla., for the C. F. Lytle Co. and Amis Construction Co., is now in charge of construction of the Medicine Creek Dam, Cambridge, Neb.

John W. Puckett, 67, who has served the Texas State Highway Department longer than any other employee, retired March 1. An engineering graduate of Texas A. & M. College, Puckett helped create the Texas Highway Department in 1917 after he had spent 13 years engineering in South America and Mexico. He has been district engineer at Pharr, in South Texas, for 16 years. He was chief engineer for the first railroad built across the Andes between Chile and Argentina. He also worked



East met West at the recent NSPE annual meeting in Buffalo, N. Y.—Russell B. Allen, professor of civil engineering, University of Maryland (left), and Wm. C. Wagner, head, Civil Engineering Dept., University of New Mexico located at Albuquerque, N. M.



J. A. Bush, as engineer-in-charge, is supervising the largest active sewage treatment project in Cuba—the enlargement of the facilities of the city of Santa Clara. Based on his studies at Lehigh University and experience in this country, he is following U. S. methods closely.

George H. Elliott, associate engineer, Bureau of Mechanical and Electrical Services (left) and Victor Moore, superintendent of incineration and landfill, show H. W. Taylor, consulting engineer (center) a part of Baltimore's controlled landfill that has been covered for four years.

Construction is nearing completion on the $6,000,000 Rickenbacker causeway at Miami, Fla., and E. J. White, resident engineer for J. E. Greiner Co., consultants on the work, is now preparing his final report on the job.

New officers of the National Ready Mixed Concrete Association are: Robert F. Porter (left), of the Harry T. Campbell Sons' Corp., Towson, Md., vice-president; and C. Gray, of the Ready Mixed Concrete Corp., Indianapolis, Ind., president.

N. M. Quade, associate engineer with Parsons, Brinckeroff, Hogan & Macdonald, was chairman of the local arrangements committee for the annual meeting of the American Society of Civil Engineers, at New York.

on railroad construction in Uruguay and Mexico, and on harbor, irrigation and drainage projects. Chief Engineer D. C. Green announced that **James F. Snyder,** Puckett's assistant since 1932, will become the Pharr district engineer.

John A. Focht, chairman of the civil engineering department of the University of Texas and professor of highway engineering there, has been appointed to the by-laws committee of the American Society for Engineering Education.

Jay Cohen, New Haven, Conn., has been appointed a senior engineering aide in the state highway department, under an engineering training program just started to train young engineers in all activities of the highway department. Mr. Cohen, already a member of the department, was graduated from Norwich University about a year ago.

Lewis A. Bosworth, a senior construction engineer for the Detroit District Office, Corps of Engineers, has been assigned as project engineer and resident representative to supervise construction of the $5,000,000 Fort Wayne, Ind., Veterans Hospital. Prior to 1942, he was with the bridge department of the Michigan State Highway Department, and for five years was assistant city engineer for Highland Park, Mich.

Denton H. Hays has been named division engineer of the Nevada State Highway Department at Tonopah, succeeding J. D. Meacham, who has been named construction engineer.

Harold K. Palmer, who has retired as principal hydraulic and electrical engineer for the Los Angeles County sanitation district, has announced he is entering private practice as a consulting engineer in Los Angeles.

Roland S. Piel, inspector in the buildings and zoning office of Baltimore County, Md., has been named county buildings engineer.

Edmund M. Shanley has resigned his position with Fred J. Early, Oakland, Calif., contractor, and has been appointed project manager for Walsh Construction Co., New York.

Leslie J. Greenwald and **Jules G. Mirot** have opened offices at 127 N. Dearborn Street, Chicago 2, Ill. under the name of Greenwald and Mirot, their practice to include industrial design. Both were formerly with De Leuw, Cather & Co., engineers.

David Erickson, who has been road engineer at the Colville Indian Agency, Nespelem, Wash., since 1935, has been transferred to Oklahoma City, Okla.

Edward H. Houk, former Alabama Highway Department engineer, now on duty with the War Department in Greece, has been named technical director of the State Building Commission. He succeeds **John M. Gallalee,** who resigned to become president of the University of Alabama. Mr. Houk was bridge engineer with the highway department between 1928 and 1935.

Ernest C. Shurley, St. Catherines, Ont., has been named engineer for the Department of Transport, Ottawa. He was graduated in civil engineering from Toronto University and formerly was an engineer on the Welland Ship Canal, which connects Lakes Erie and Ontario in the Province of Ontario.

W. J. Edington, assistant city engineer of Moncton, N. B., has been named acting city engineer, succeeding E. B. Martin, who died recently.

Marshal Feng Yu Hsiang, vice-commander of Chiang Kai-shek's National army and also Chinese Christian military leader, left, is inspecting navigation controls on the Upper Mississippi River. Col. W. K. Wilson Jr., St. Paul district engineer, right, accompanied the general to Lock and Dam No. 2 at Hastings, Minn., and to Lock and Dam No. 1, Minneapolis. Also shown is Robert Y. T. Low, the general's son-in-law.

Editorial staff changes made on News-Record

Effective between now and May 1 a number of changes will occur in the editorial staff members and assignments on *Engineering News-Record*. The realignment of duties is made necessary by the resignation of Hal W. Hunt, associate editor in New York, and Archie N. Carter, regional editor in Washington, to assume important posts in the construction industry.

Vincent B. Smith, at present associate editor in Chicago and with long experience on the staff, will move to Washington in Mr. Carter's position, and Robert H. Dodds, associate professor of civil engineering at Colorado A and M College, will take Mr. Hunt's place in New York. Mr. Dodds, a civil engineering graduate of Iowa State College, was a member of the *Engineering News-Record* staff from 1937 to 1940. Leaving to take post-graduate work in journalism at Northwestern University, he spent a short time in the U. S. Engineer Office at Wright Field, Dayton, Ohio, before being commissioned in the Civil Engineer Corps, U. S. Navy. After two years on naval shore construction projects in the New York area, he was transferred to the Bureau of Yards and Docks in Washington to aid in writing the history of the Civil Engineer Corps and the Seabees in World War II. He left the Navy as a lieutenant commander in May, 1946, to accept the teaching position in Chicago.

The vacancy created in Chicago by Mr. Smith's transfer to Washington will be filled by Henry T. Perez, at present assistant editor of *Construction Methods* in New York. Mr. Perez, who also served in the Navy as a lieutenant, is a graduate of Cooper Union School of Engineering in New York and has been associated with such well-known construction firms as Spencer, White & Prentis, Turner Construction Co., and Merritt-Chapman & Scott Corp. With Dry Dock Associates, he was employed on the extensive work that was carried out at the Norfolk Navy Yard during the early years of the war, and just prior to taking up editorial duties, was assistant maintenance engineer for the Bowery Savings Bank, New York, on its housing and building properties.

Although leaving their editorial work on construction, both Mr. Hunt and Mr. Carter—each of whom has been with *Engineering News-Record* upward of 8 years—will remain in the construction industry.

Mr. Hunt will assume an engineering and administrative job with the Western Foundation Co., while Mr. Carter becomes manager of the highway contractors division of the Associated General Contractors, with headquarters in Washington. Henry J. Kirk, who has been manager of the AGC highway contractors division, will head a new department of research for the organization. In his new duties, Mr. Carter will also act as co-secretary of the joint cooperative committees between the AGC, the American Association of State Highway Officials and the National Association of State Aviation Officials.

Approve $66 million Agriculture expenditure

A total of $14,750,000 for the U. S. Forest Service for forest development roads and forest highways, and $44,000,000 for the U. S. Soil Conservation Service for its construction and other operations is contained in the Department of Agriculture appropriations bill (H. R. 5883) passed by the House this week.

The measure also appropriates $1,750,000 for water facilities, and $6,000,000 for flood control work, and in addition authorizes the Rural Electrification Administration to make loans up to a total of $400,000,000 to local cooperatives for the construction of power production and distribution facilities.

This latter authorization is $100,000,000 in excess of the budget estimate and $175,000,000 above the amount authorized for the current fiscal year.

Schools building agency opens in Pennsylvania

The newest Pennsylvania construction agency—the State School Building Authority—which will do construction work for school districts throughout the state—has established headquarters in Harrisburg.

Created by the 1947 legislature, the authority is authorized to issue bonds to finance its multi-million dollar construction work. It will build schools for the respective school districts, leasing the structures to the districts at an annual rental sufficient to cover interest and amortization over a period not exceeding 30 years.

Russell C. Bartman, executive director of the Authority, said the construction program would get under way as soon as possible. He said no decision had been reached as to whether the authority would handle its own letting of contracts or turn over this work to another state bureau.

Ohio court ends practice by unregistered firm

A Franklin County (Columbus) Ohio Common Pleas Court last week issued a permanent injunction to prohibit Elson R. Parker of Columbus or the seven firms he operates from practicing engineering or surveying, or connecting the word "engineering" or a synonym to any of the various corporate names.

The injunction was the result of action brought by the Ohio Society of Professional Engineers, which charged that although Parker and his various companies have long advertised themselves as engineers and surveyors in daily newspapers and in directories, Parker is not in fact a registered professional engineer or surveyor under Ohio law.

Specifically enjoined were Elson R. Parker; Elson R. Parker Industries, Inc.; Elson R. Parker Company, Elson R. Parker Engineering and Surveying Co., Elson R. Parker Health Food and Pharmacal Company, Elson R. Parker Nursery and Reforestation Projects, and Capital Surveying Company.

Army approves report on West Fork Dam

Construction of a $14,000,000 flood-control dam on the West Fork River in West Virginia, near the city of Weston, is favored in a recent report made by the U. S. Engineer Corps. An earthfill structure to impound some 52 billion gallons is recommended.

Aside from flood control, it is said that the reservoir would provide flow regulation and pollution-abatement benefits in the West Fork, Monongahela and Ohio River valleys.

One of the most active proponents of the project is Scotland G. Highland, general manager and chief engineer of the Clarksburg, (W. Va.) Water Board. Mr. Highland, whose treatment plant was almost inundated by floods earlier this year, has been urging remedial measures since 1913.

AGC nears its goal in affiliation program

The Associated General Contractors of America has reached the three-quarter mark in its current campaign to obtain chapter sponsorship of 100 affiliated engineer construction units under the Organized Reserve Corps.

Lt. Gen. R. A. Wheeler, Chief of Engineers, said that to date 71 cranches and chapters of ACC have signed agreements to sponsor 72 units.

Begin reconstruction of Tacoma Narrows bridge

Reconstruction of the Tacoma Narrows bridge near Tacoma, Wash., is scheduled to begin late this month, following conclusion of long-pending arrangements to finance the $14,000,000 structure (*ENR* Feb. 26, vol. p. 317).

Sale of the bond issue came in at almost the 11th hour of negotiations. The State Toll Bridge Authority twice had called bids for the bonds, failing to receive any figures at the first opening last December, and a conditional one at the second opening. A syndicate headed by A. C. Allyn & Co. of Chicago obtained an option to buy the bonds but let it expire March 10.

With March 15 the deadline for accepting contractors' bids, the state turned to the RFC for a loan. Before the RFC could take action, however, Allyn & Co. reconsidered and closed a deal for the bonds March 12 with a good faith check for $200,000. Under terms of the sale, the state will pay 3¾ percent interest and a 5 percent premium.

Following sale of the bonds, the state immediately ordered construction of the bridge, accepting low bids totaling $11,194,585 offered by the Bethlehem Pacific Coast Steel Co. and John A. Roebling Son's Co. of California.

Construction of the 4-lane suspension span, replacing a 2-lane structure which collapsed in a high wind in 1940, will require 30 months.

Senate group approves Chesapeake Bay crossing

On March 2 the Senate Public Works Committee had approved the O'Conor-Tydings bill to authorize a Chesapeake Bay crossing, (*ENR* Nov. 27, 1947, vol. p. 722) which would link Sandy Point and Kent Island.

The bill, which also authorizes a bridge or tunnel crossing for the Baltimore harbor, will now be placed on the Senate calendar for early consideration. It embodies the views of federal and Maryland officials concerning the method of financing the projects, and provides that the state, through the State Roads Commission, be authorized to collect tolls for the amortization of the structures.

Non-profit corporation to push the Reber Plan

Brig. Gen. Philip G. Bruton, Corps of Engineers, retired, returned from Europe to attend his first board of directors meeting in San Francisco recently of a newly-formed non-profit corporation set up to promote the Reber Plan. (*ENR* July 11, 1946, vol. p. 56)

The non-profit corporation, known as the San Francisco Bay Project, Inc., was formed to obtain a survey of the problems involved and the efficiency of the Reber Plan in their solution. Studies also will be made to determine cost of construction.

One-piece basement form speeds house erection

Built rigidly into one piece, forms for basement walls of a 24 x 29 ft. house are handled in one unit in a recently-developed system to speed housing construction. The forms are made of an 8-in. wide standard steel panel, which for this use is connected into a rigid double-walled box to form the inside and outside of the wall.

Some 1,400 basements are being built by this method in the Viers Mills Village development at Silver Springs, Md., near Washington. The single-

piece form, with a new idea for stripping, was developed by the Irvington Form and Tank Co.

Floor slabs are completed in advance and the form moved by crane to the new site. Survey points at any two corners are sufficient to locate the form for the structure.

Wales at the top of the form and near the bottom hold the standard panels. A few 1 in. ties through the bottom wale hold the form securely. The top is permanently held and spaced by channel members attached to the verticals seen in the photo. Walls are 7 in. wide at the top and, in a height of 7 ft., taper to a bottom width of 9 in. Inside corners of the wall are rounded.

Stripping is done by using turnbuckles at the center of the lower wale in each wall to spring the form in. This action breaks the bond with the concrete and pulls the form away from the corners. Thus it is possible to lift the entire unit without difficulty.

The five sets of forms in use can be moved and set and poured on an 8-hr. shift, by one crane working about half time.

Fago Construction Corp. of Buffalo is the foundation contractor. Harris Construction Co. of Brooklyn hold the general contract for the work.

ALSO RECORDED . . .

Carlo Bongiovanni, Los Angeles, Calif., contractor, believes in figuring his jobs down to the last cent. He bid $999,999.99 on a contract for four underpasses and two grade separations on a new highway project on Figueroa Street. He got the contract.

Leap-Year Note: With the avowed intention of "destroying discrimination," female engineering students at the College of the City of New York have formed a Society of Women Engineers.

The U. S. Navy began dredging operations on the Great Salt Lake recently to keep a channel clear of shifting sand that has—in official terminology—"hampered naval operations." The lake's "navy" consists of a 38-ft. picket boat and a small launch.

Los Angeles, Calif., is using radar to find a way to keep autoists from killing each other on the Arroyo Seco Freeway. Providing accurate recordings on speed drivers' habits, data will be used to redesign proposed new freeways.

Johnson City, N. Y., will have to spend $20,000 this year to repair two bridges, and is much annoyed at New York State as a result. The bridges were built by the state and turned over to the town for maintenance in 1942. Officials said the original work was poor. "If one of us had done such a . . . . job, we'd have been run out of town," commented J. C. Adams, public works commissioner.

The Army's Corps of Engineers found itself involved with a girl's school over a piece of land in Washington, D. C. The school—the National Training School for Girls—stands on part of a 19-acre tract the engineers want for water-system expansion purposes. The Army contends it owns the land and school officials don't argue the point. They say they have no funds to move the establishment.

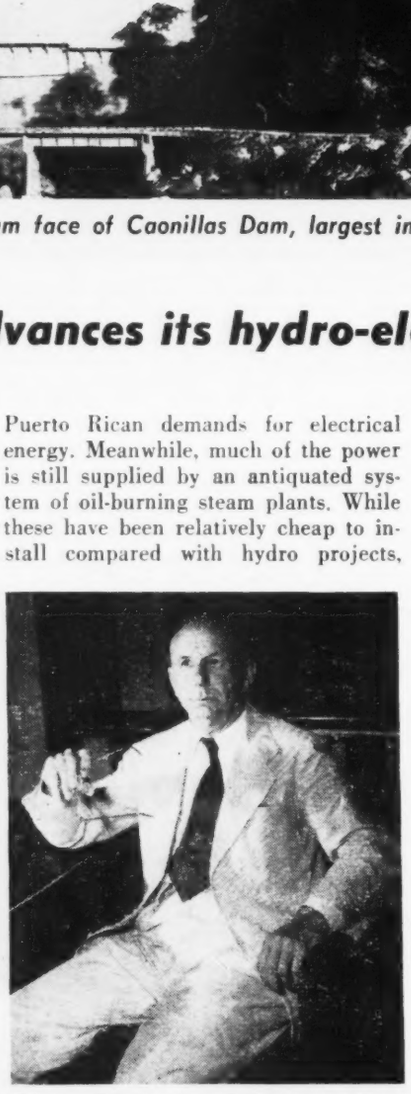
The downstream face of Caonillas Dam, largest in Puerto Rico

Puerto Rico advances its hydro-electric program

Another link in Puerto Rico's Hydro-electric power development, part of an intensified program of industrial growth, will be added next year when the Caonillas Hydro-Electric project is completed. It will constitute the largest of the power units being built under the direction of the Puerto Rico Water Resources Authority, an organization that supplies one-seventh of the island's power.

A unified plan for hydro-electric development was instituted by the insular government in 1941, encompassing all of Puerto Rico's water resources for hydro-electric power, irrigation and badly-needed water reserves. With the coming of new industries, however, this need has grown, so that monthly kwh. consumption has increased from 20 million in 1941 to over 38 million in 1947. Planning authorities anticipate a further rise in consumption of about 50 million kwh. yearly. Total developable hydro resources from all streams are estimated at 700 million kwh. per year.

Preliminary construction had begun on Caonillas in 1942, at a time when final work was being put on the Garzas and Dos Bocas projects, both now completed. When Caonillas is finished, these three developments, plus existing installations, will produce 400 million kwh. yearly, enough to satisfy present Puerto Rican demands for electrical energy. Meanwhile, much of the power is still supplied by an antiquated system of oil-burning steam plants. While these have been relatively cheap to install compared with hydro projects, fuel costs make the operation uneconomical.



Chief Engineer—Carl A. Bock, a C.E. graduate of Cornell College, Iowa, 1906, was long engaged on water control engineering. He joined the Tennessee Valley Authority in 1933 and until 1939 he was its chief consulting engineer.

Caonillas itself consists of a straight gravity flow concrete dam 220 ft. high and 780 ft. long, located on a granite formation in a narrow gorge about two miles above the head of the Dos Bocas reservoir. It will create a reservoir with a storage capacity of 39,000 acre-ft, largest on the island. This will provide a total head of 528 ft. above the average tail water elevation at the power plant.

A concrete-lined pressure tunnel has been cut through rock in the surrounding hills its entire length of 10,000 ft to convey water from the dam to the power plant, which will have an installed capacity of 24,000 hp. and will generate about 57 million kwh. per year. The storage capacity of this project, which triples present storage facilities of the Dos Bocas plant, will increase the latter's energy output during the dry season by some 4 million kwh. of prime energy per year. Thus, the total energy output of the Caonillas project will total 61 million kwh. yearly, surpassing that of Dos Bocas or any of the island's other hydro projects. The drainage area, comprising 50 square miles, is located in the north central section of the island. It has an average rainfall of 87.5 in.

The Caonillas River is one of the

principal tributaries of the Arecibo River system, and drains into the Dos Bocas reservoir. According to plans recently approved by the planning board, a further addition to the Caonillas project will increase its drainage area by 30.7 sq. mi., enlarging its watershed by some 60 percent. Plans call for diversion of the upper Arecibo, Pellejas, and Vivi rivers eastward into the Caonillas reservoir, where the flow would be regulated and directed through both the Caonillas and Dos Bocas power plants. The water yield from 29.7 sq. mi. would be passed through a power plant located on a small tributary of the Vivi River.

Estimates reveal that this extension will yield a total flow of 85,700 ac. ft. in the normal water year, of which 64,400 ac.-ft. will be utilized in a new plant in the city of Utuado. A total of 66,400 ac.-ft. will be made available for regulation in the Caonillas reservoir. These yields for power production represent an average flow of 88.0 and 91.5 cfs. respectively, according to government estimates.

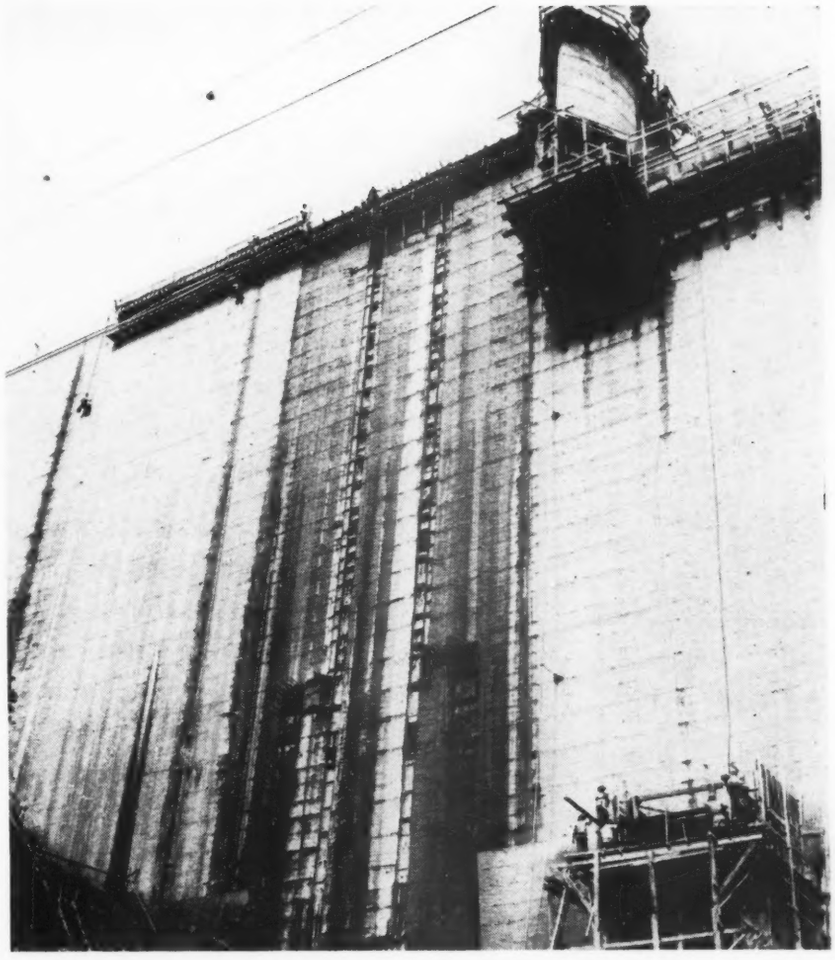
The Utuado plant will operate under an average net head of 170 ft. and will generate 9,300,000 kwh. in a normal year. The increased flow through the Caonillas plant will develop about 26,300,000 kwh. under a new operating head of 470 ft. while the additional energy generation at the Dos Bocas plant is estimated at 1,000,000 kwh. The total increase for Puerto Rico's system of hydro-electric power will thus amount to 36,600,000 kwh. yearly.

For the present, most of the electric power is being distributed in San Juan, Ponce and Mayaguez, where the largest concentration of industrial plants has taken place in recent years. Ultimately, lines will be extended to other parts of the island as the need requires.

To cost about $10,000,000

It is estimated that the Caonillas project will cost about $10,000,000, financed through the sales of power, and short-term and other locally-arranged loans. Part of these hydro-electric developments are being carried by a $50,000,000 bond issue sold last year.

A large share of the credit for this program goes to Antonio Lucchetti, executive director of the Puerto Rico Water Resources Authority. He envisaged the possibility of an integrated hydro-electric system at a time when only a single, small plant was in operation at the southern end of the island. Much of the actual construction problems have been guided by the Authority's chief engineer, Carl A. Bock, who had long experience with the Tennesee Valley Authority from its inception in 1933 to 1939 when he resigned.



***Construction** on the dam was started in 1942, under the direction of the Puerto Rico Water Resources Authority. The 220-ft. dam will create a reservoir with a storage capacity of 39,000 ac. ft. and with two other developments will produce 400 million kwh. yearly.*

***This 2-mile-long,** concrete-lined pressure tunnel, 11 ft. in diameter, is being cut through the surrounding hills to carry water from Caonillas Dam to Dos Bocas reservoir, another hydro-electric project already completed in Puerto Rico's power reconversion program.*

THE CUSTOMERS TELL US

This is a "man bites dog" version of what we have been saying in our advertisements for these many years — namely, that the great majority of the *original* cast iron water mains, laid in this country from the earliest days, are still in service. Now our customers give *us* the facts—facts secured *by* users, *from* users, *for* users.

The chart shown on the opposite page is based on a published report of the American Water Works Association of the results of a survey of the "Survival and Retirement of Water Works Facilities" in 25 representative cities. These are facts taken from the records. *They show that 96% of all cast iron water mains ever laid in the 25 surveyed cities, since 1817, in sizes 6-inch and over, are still in service.*

The cast iron pressure pipe industry, in spite of raw material shortages, achieved in 1947 one of the biggest production years in footage in the history of the industry, and has recently installed additional footage capacity.

Mr. Q. Check says:
Collect and sell your scrap *NOW*

All statements and percentages regarding service records of cast iron mains set forth in this advertisement are based on published reports of a survey directed by a Joint Committee representing the American Water Works Association, New England Water Works Association, and the Institute of Water Supply Utilities. The findings, as they apply to cast iron pipe, have been reprinted by permission in our brochure "Survival and Retirement Experience with Cast Iron Water Mains." If you have not received a copy, write to Cast Iron Pipe Research Association, Thomas F. Wolfe, Engineer, 122 South Michigan Avenue, Chicago 3, Illinois.

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6% OF ALL CAST IRON WATER MAINS* LAID IN THESE 25 CITIES OVER A PERIOD OF 128 YEARS ARE STILL IN SERVICE

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Babylon, New York
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Denver, Colorado
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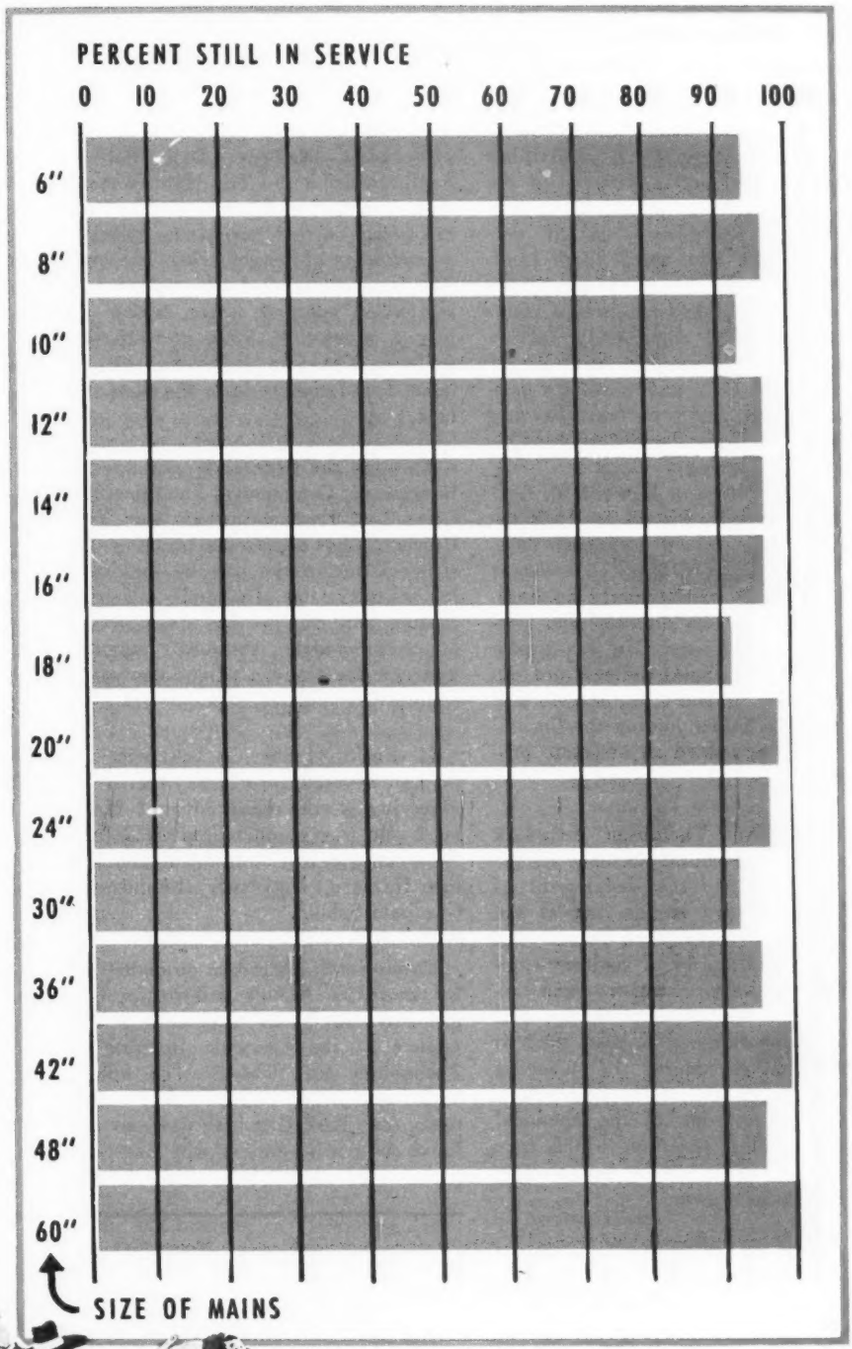
Detroit, Michigan
Huntington, West Virginia
Jamaica, New York
Merrick, New York
Norwich, New York
Ottawa, Ontario
Philadelphia, Pennsylvania
Portland, Maine
Rochester (Suburban), N. Y.
St. Mary's, Pennsylvania
St. Paul, Minnesota
Sag Harbor, New York
Scranton, Pennsylvania
Springfield, Massachusetts
Summit, New Jersey
Syracuse (Suburban), N. Y.
Utica, New York
West Palm Beach, Florida
Winnipeg, Manitoba

*Sizes from 6 to 60 inches.



SERVES FOR CENTURIES

ENGINEERING SCHOOL NEWS

New director of Cornell School of Engineering—Sanitary science labs at M.I.T.—Fellowships for South American students at Carnegie Tech—Faculty changes.

Associate Professor Carl Crandall has been appointed acting director of the School of Civil Engineering at Cornell University. Professor Crandall succeeds the late Director William Lindsay Malcolm. He is a graduate of Cornell, C. E., 1912, and has been a member of the civil engineering faculty since 1914. He was named assistant professor in 1921 and associate professor in 1944, and is currently serving as secretary of the faculty of the College of Engineering.

Associate Professor Howard M. Gifft has been named assistant to Professor Crandall. He joined the civil engineering faculty in 1941 as an assistant professor, and was formerly an engineer with the Iowa highway and conservation commissions. He was graduated from Iowa State College and obtained the M. S. and C. E. degrees and taught there before joining the Cornell staff. He was named an associate professor in 1944.

The William Thompson Sedgwick Laboratories of Sanitary Science are the latest addition to the department of civil and sanitary engineering at the Massachusetts Institute of Technology. The new laboratories of sanitary engineering, sanitary chemistry and research, and sanitary bacteriology and research are designed to meet modern educational procedures in teaching sanitary engineering and to provide a thorough knowledge of the chemical and biochemical reactions which take place in the treatment of water, sewage, and industrial wastes.

Hayes H. Black has been appointed associate professor of sanitary engineering in the civil engineering division of the University of Iowa College of Engineering. He has been with the United States Public Health Service at Detroit, Mich., as director of the United States section of an international commission investigating boundry water pollution. Previous to 1942, Professor Black was senior sanitary engineer with the Illinois State Department of Health for eight years.

C. R. Bramer, a professor of civil engineering at the North Carolina State College School of Engineering, Raleigh, N. C., is directing tests of a new type of precast tile-beam floor for the Southern Brick and Tile Manufacturers Association of Atlanta, Ga. The tests are being carried out in the college's department of engineering research. The beams consist of tile casings with reinforced concrete cores, which are placed abreast to form a continuous surface. Concrete is poured on the beam foundation to form the floor surface.

Through the Federal Works Agency, Bureau of Community Facilities, the College of Engineering of New York University has acquired a building constructed during the war by the Navy. It is near the University Heights campus and will provide space needed to accommodate veterans pursuing undergraduate and graduate courses in engineering and research.

H. Phillip Pickering has been appointed assistant professor of civil engineering at the University of Maryland. He was graduated in 1932 from the University of Colorado and attended the Harvard University Engineering Graduate School.

Three South American students will be awarded $1,000 fellowships for graduate study in engineering and science at the Carnegie Institute of Technology for 1948-49. The fellowships, awarded by the Matthes Foundation, New York City, are open to any Latin American student who has completed with distinction, or will have completed by September, 1948, the requirements for a bachelor's or higher degree in engineering or physical science. Examinations are to be held in the candidates' respective communities under the auspices of the Graduate Record Office of the Carnegie Foundation. Deadline for the filing of applications is April 15.

John M. Hayes has been appointed an associate professor of structural engineering, Purdue University, LaFayette, Ind. He obtained his degree in civil engineering from Purdue and his master's degree from the University of Tennessee. He has been associated with the Tennessee Valley Authority and with the state highway departments of Tennessee and Arkansas.

John D. Turci is now an instructor in the civil engineering department of Lafayette College, Easton, Pa. A graduate of the University of New Hampshire, 1938, he has been on the New Hampshire water resources board; in rural electrification work in that state; with the office engineers of the Panama Canal; U. S. Navy underwater demolition branch; and the bridge division of the New Hampshire state highway department.

Prof. Elihu Geer has been appointed acting director of the Department of Civil Engineering at the University of Detroit, replacing Prof. Thomas C. Hanson, who is on leave of absence to be commissioner of public works in Detroit. Formerly assistant director of the department, Professor Geer received his bachelor of civil engineering degree at the University of Cincinnati and did graduate work at the University of Michigan. He has been instructor in structural design and mathematics at the University of Detroit since May, 1946.

Iowa Approves $3 million educational construction

The Iowa legislative interim committee last week authorized the state board of education to proceed with $3,093,000 worth of new buildings and other capital improvements at four institutions.

Money for the projects was appropriated by previous legislatures but work had been delayed because of war conditions.

Largest of the projects will be the $1,580,000 library for the University of Iowa at Iowa City, which will call for a 300 x 230 ft. structure, three stories high.

North Dakota plans major college buildings

The state budget board of North Dakota has approved almost the entire $2,500,000 college building program authorized by the 1947 legislature, the only proviso being that "suitable" bids can be obtained.

Major units include a science building and a gymnasium at the University of North Dakota; a library, livestock building and agricultural engineering building at Minot State Teachers college; a classroom building and central heating plant at the State Forestry school, Bottineau; and a seed house at the experiment station, Minot.

OBITUARY

Ernest R. Childs, 72, an engineer in San Diego, Calif., since the beginning of the century, died Mar. 4. He was San Diego County surveyor and ex-officio road commissioner from 1923 to retirement in 1945. From 1905 to 1918, Mr. Childs was assistant city engineer for San Diego, and served as a captain in the U. S. Army Engineers in 1918 and 1919. Between his Army service and taking the position county surveyor, he supervised construction of the Marine Corps Barracks, now known as the Marine Base; the Naval Training Station and the Navy Hospital.

Joseph P. Cuddy, a construction engineer, of Squantum, Mass., died March 11 in Boston.

Cedric E. Faber, 57, highway enginer for Russell County, Ala., died March 7 as the result of an automobile accident. A graduate of Alabama Polytechnic Institute, he was on its faculty for a time. Afterwards he did pioneering engineering work for the Florida East Coast Railroad, and he was resident highway engineer for Georgia in building the military 4-lane highway from Columbus to Fort Benning.

Carl L. Wyant, 57, retired general manager and former chief engineer of the Montecito Water District, Santa Barbara, Calif., died Feb. 29. He retired as general manager and consulting engineer of the water district in 1943 because of illness. Before graduation from Stanford University, he had designed a dam, tunnel and distributing system to take water from the Santa Ynez river to Montecito.

George H. McMahon, 60, engineer at Wright and Patterson Air Fields, died Feb. 21 in Dayton, Ohio. At one time he was irrigation engineer of North Dakota, and worked on the project to provide a lake waterworks for Toledo, Ohio.

Robert Van Rensselaer Reynolds, 74, who for many years was chief of engineering in the U. S. Forest Service and led surveying parties in construction through the timberlands of the Rockies from Canada to Mexico, died March 10 in Washington, D. C.

Jack F. Ellard, 56, safety engineer at the Grenada Dam, Miss., died March 10. He had been with the U. S. Engineers for a number of years, serving in the Vicksburg office.

Charles F. Brooke, 75, a civil engineer of the Youngstown Sheet and Tube Co., Youngstown, Ohio, until he retired 18 months ago, died Feb. 29 in that city.

Louis J. Hills, 56, chief engineer, Illinois division of highways for the district of 14 Southern Illinois counties, died March 10. He was a graduate of the civil engineering department, University of Illinois.

David A. Watt, 83, waterways engineer, died in St. Petersburg, Fla., March 14. Born and educated in England, he came here in 1885. His career as civil engineer embraced bridge and structural engineering, road work and miscellaenous construction, but the major part of his work was with waterways, and for 22 years he was connected with the Engineer Department of the Army, on the design and construction of locks, dams, etc., in various parts of the country. In 1905 and afterwards he designed and supervised the construction of about 200 miles of the New York State Barge Canal, including the movable dams on the Mohawk River. During the first world war he was major of engineers, and was the principal assistant to Colonel Newcomer, who then had general charge of the U. S. waterways under the Chief of Engineers. Later Mr. Watt was sent as district engineer to begin work on Wilson Dam. His last work was to report on the New England rivers for the Engineer Corps of the Army.

Bernard A. Campbell, 65, assistant division engineer in the Toledo, Ohio division of harbors and bridges, died March 5.

Joseph H. Fleming, Columbus, Ohio, civil engineer, died Feb. 17 in that city. He was formerly with the Franklin County engineer's office and was the designer of the W. Broad St. and W. Spring St. bridges in Columbus. He was graduated from Ohio State University engineering college in 1902.

MAJOR MEETINGS

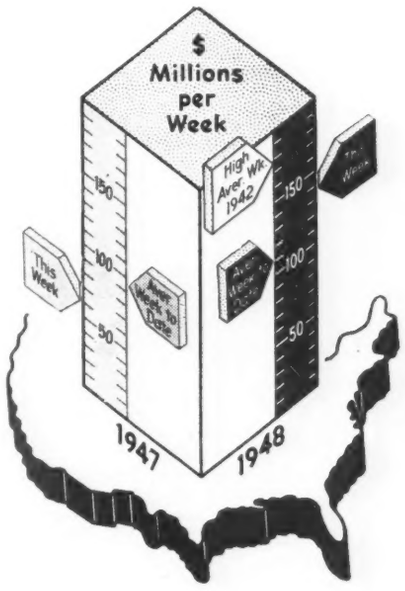
American Society of Civil Engineers, spring meeting, Hotel William Penn, Pittsburgh, Pa., April 7-9.

Concrete Reinforcing Steel Institute, Edgewater Gulf, Hotel Edgewater Park, Miss., April 19-24.

Building Officials Training School, Drake Hotel, Chicago, Ill., April 26-29.

State Sanitary Engineers, Annual conference with Public Health officials, Washington, D. C., April 26-30.

CONSTRUCTION ACTIVITY



As Reported this week to . . .
Engineering News-Record

CONTRACT VOLUME

Continental U. S. Only (Thousands of Dollars)

	Week of Mar. 25 1948	Cumulative 1948 (13 wks.)	Cumulative 1947 (13 wks.)
Federal	$4,682	$289,508	$87,492
State & Mun.	63,630	479,932	305,853
Total Public	$68,312	$769,440	$393,345
Total Private	69,598	655,254	794,531
U. S. Total	**$137,910**	**$1,424,694**	**$1,187,876**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Dollar Volume (Thousands)

Type of Work	This Week	Cumulative 1948 (13 wks.)	Cumulative 1947 (13 wks.)
Waterworks ...	$2,016	$40,644	$27,360
Sewerage	4,624	46,917	20,375
Bridges	13,785	65,825	35,083
Highways	21,085	178,223	122,077
Earthwork, Waterways	4,643	144,381	28,773
Buildings, Public	17,251	248,160	111,947
Industrial ...	15,270	163,471	190,779
Commercial .	38,625	419,900	489,962
Unclassified ...	20,611	123,173	161,520

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1948 (13 wks.)	Cumulative 1947 (13 wks.)
NON-FEDERAL	$777,588	$256,004
Corporate Securities	422,889	29,223
State and Municipal	354,699	226,781
**Total Capital ..... **	**$777,588**	**$256,004**

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar.'48	438.41	210.74
Building Cost	Mar.'48	329.03	177.86
Volume	Feb.'48	234	103

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *E. R. BIGGERSTAFF, M. R. ROESSLER, Statistics*

WATER SUPPLY

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked March 30

Ore., Portland—Home Water Dist., 7840 S. W. Capitol Hy., water sys. imprvs., 43,120 lin. ft. 4 to 12 in. c.i. pipe. Plans deposit $25. C. E. Carter, Spalding Bldg., engr.

Bids Asked March 31

†**S. C., Dupont**—Officer-Charge Constr. Box 365, Naval Base, fire protection, water distr. at U. S. Naval Communications Service. Plans deposit $10.

Bids Asked April 2

Ill., Elliott—City, Village Hall, waterworks distr. sys., water well, pump station and ground storage reservoir, well pump, high service pump, etc., Plans deposit $10. Tracy A. Pitzen, Paxton, civil engr.

Bids Asked April 5

Ill., Hamilton—City, City Hall, 4,400 lin. ft. 4 in. c. i. and 4,400 lin. ft. 4 in. cement asb. watermains, 8 four in. hydrants, 4 4-in. gate valves and boxes, 2,000 bbls. c. i. fittings, etc., to imprv. waterworks extens., Austin Engineering Co., Inc., 115 S. Jefferson Ave., Peoria, Ill., engrs.

La., Waterproof—Town Council, water treatment plant, remove pumps, motors, chlorinator controls, etc. Pan-American Engrs., 1418 9 St., Alexander, engrs. CD 1/16—ENR 1/22.

†**N. J., Somerville**—Veterans Admin., Branch Office No. 3, 5000 Wissahickon Ave., Phila. 1, Pa., 200,000 gal. elevated water tank, riser, tower, concrete fdns. and valve pit, etc., Spec. No. P-4807. CD 2/26—ENR 3/4.

Bids Asked April 7

Fla., Hallandale—City, water sys. incl. water treatment plant and distribution sys. CD 11/10—ENR 11/27.

Bids Asked April 8

●**Calif., Glendale** — City, 57 m.g. reservoir. Over $1,000,000. CD 12/13/44—ENR 12/28/44.

Bids Asked April 16

Ark., Little Rock—Little Rock Water Works Bd. install filter equipment for water works plant. $215,000. CD 10/9—ENR 10/30.

Bids Asked About May 1

O., Bucyrus — City, City Hall, water softening plant. Floyd G. Browne & Assoc., 196 S. Main St., Marion, consult. engrs. CD 8/24/45—ENR 8/30/45.

Bids Asked May 4

Ont., Toronto—City, H. E. McCallun, mayor, 42 in. watermain from High Level Pumping Station to Roselawn Ave. About $980,000. M. Stewart, c/o owners, engr. CD 7/1/46—ENR 7/25/46.

LOW BIDDERS

Fla., Quincy—City, Mar. 10, waterworks imprv. from Div. 1, from Lewin & McDowell, Inc., 285 Madison Ave., New York, N. Y., **$229,775**, Div. 2, from R. D. Cole, Mfg. Co., Newman, Ga., **$11,400**. Est. $200,000. CD 2/3—ENR 2/12.

Kan., Bonner Springs—City, Mar. 3, standpipe, from Chicago Bridge & Iron Co., 332 S. Michigan Ave., Chicago, Ill. **$28,370**. CD 1/5—ENR 1/8.

Pa., Morrisville — Morrisville Boro, rejected bids Jan. 26, WW imprvs. Est. **$276,210**. CD 12/16—ENR 12/18.

Wis., Appleton—Bucholz Sanitary Dist., Appleton, watermains from John Schlise, Sturgeon Bay. **$48,055**. McMahon Engr. Co., Green Bay, engrs.

CONTRACTS AWARDED

Kan., Wichita—City, imprv. W. W. supply line, supply lines, to W. B. Carter, 1224 N. Broadway, **$129,990*****telephone lines, to C. A. Williamson, 546 N. Bluff St., $33,978***underground cable, to Sutton Electric Co., 123 N. Market St., **$58,074**. Bids 3/2. Grand total **$222,042**. CD 11/20/46—ENR 12/12/46.

Minn., Austin—City, Bd. Water, Electric, Gas & Power Comrs., W. D. Dunlap, secy., 2,000,000 gal. concrete water reservoir, to Fuel Economy Engr. Co., 510 New York Bldg., St. Paul. **$256,495**. Bids 3/9. CD 3/2—ENR 3/4.

Pa., Boswell—Boswell Boro, 4½ mi. 10 in. watermain, concrete intake, concrete block chlorine house at Roaring Run to Latrobe Constr. Co., Latrobe. Est. **$124,130**. Richard J. Harman, 222 N. Third St., Harrisburg, engr.

B. C., Delta—Pipe supply, 83,185 ft. 4 in. steel pipe, 11,555 ft. 10 in. steel pipe, to Armco Drainage & Metal Products of Canada, Ltd., Granville Island, Vancouver, **$92,986**; supply 12,850 ft. 10 in. c.i. pipe, to Gordon & Belyea, Ltd., 101 Powell St., Vancouver, **$43,032**. Bids 2/25. CD 2/16—ENR 2/19.

SEWERS, WASTE DISPOSAL

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked March 29

Ala., Birmingham—City, c/o J. D. Webb, city engr., sanitary sewer imprvs. CD 2/5/47—ENR 2/20/47.

Bids Asked March 29

Conn., Windsor—State, G. A. Hill, hy. comr., State Office Bldg., Hartford, rein.-con. pipe sewer drainage Lovell, Highland and Midian Aves. Plans deposit $1.86.

Bids Asked March 30

Illinois—State Hy. Div., Springfield, 3.01 mi. storm sewer, etc., on F. A. Route 122 (Tri-State Hy.) from Thorn Creek west of Lansing east to Indiana State Line, Sect. 242 6T, Proj. UI-246 (23), F. A. Route 122, Dist. 10, Cook Co. Westley W. Polk, Springfield, ch. engr.

S. C., Chester—City, sanitary sewer imprvs. Harwood Beebe Co., P.O. Box 289, Spartanburg, consult. engr. CD 2/19/47—ENR 3/3/47.

Tex., Austin—City, G. Morgan, mgr., 2 sewage lift stations, Contr. G. Tillery station at Gonzales St., Contr. H. Tillery St. at Govelle St. $70,000. CD 4/30/46.

Bids Asked May 6

N. J., Mt. Holly—Mt. Holly Sewage Auth., Mt. Holly, sewage disposal sys. $650,000, Sherman & Sleeper Assoc., 501 Cooper St., Camden, engrs. CD 1/24/47—ENR 2/6/47.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	

Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
●	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Bids Asked April 1

S. D., Clark—City, sewage plant. $70,000. Scott Eng. Co., Box 312, Watertown, engr.

Bids Asked April 2

Minn., Clarissa — Village, K. Kaliher, clk., sewage treatment plant. $50,000. Plans deposit $10. P. C. Bettenburg & Co., 1437 Marshall Ave., St. Paul, engrs. CD 4/5/46—ENR 4/18/46.

Bids Asked April 9

●**Fla., Daytona Beach**—City, sanitary sewer sys. incl. sewer treatment plant. $2,114,000. Russell & Axon, Municipal Airport, P. O. Box 1431, Daytona Beach, engrs. CD 10/13—ENR 10/16.

Tex., Dallas—City, E. Goforth, secy., Bachman Valley Section of East Bank sanitary sewer trunk line. $525,000. Powell & Powell, Rep. Bank Bldg., engrs. CD 12/13/45—ENR 12/27/45.

Bids Asked April 12

Mont., Great Falls — City Council, Civic Center, Proj., storm sewer sys., running north on 7 St. from Central Ave. to Missouri River, incl. 15,700 cu. yd. excav. and backfill, 5,435 lin. ft. 6- to 60-in. pipe, 475 lin. ft. tunneling, 13 manholes, 47 inlets, 275 cu. yd. concrete, etc. Plans deposit $20. CD 11/24—ENR 12/11; Adv. ENR 3/25.

LOW BIDDERS

●**Calif., Arcadia**—City, Council, City Hall, 74 mi. 8 to 10 in. v.c. sewer laterals 28 mi. v.c. house connections, from M. Radich & Co., 3000 Empire Ave., Burbank. **$2,596,243**. CD 5/14/29.

Ind., Lafayette—State Procurement & Supply Div., O. R. Heslar, dir., State House, Indianapolis, Mar. 10, sewage treatment plant, State Soldiers Home, from Karl H. Kettlehut, 77 Lafayette Loan & Trust Bldg. **$161,556**. Est. $150,000. CD 2/18—ENR 2/26.

Ky., Mount Sterling — City, Mar. 2, sewage treatment plant and sewer line addns., Contr. 1, from Clarke, Stewart & Wood, 326 Georgetown St., Lexington, **$150,592**, Contr. 2, from W. L. Hailey Co., Cotton States Bldg., Nashville, Tenn., **$42,617**. CD 1/28—ENR 2/5.

Tex., Dallas—City, March 21, sanitary sewers in Knights Branch Drainage area from F. S. Oldt, 403 S. Haskell St. **$73,730**. CD 3/9—ENR 3/11.

Wis., Hartford — City, March 2, sewage treatment plant addn., from Central Contrg. Co., 1220 Algoma Blvd., Oshkosh. **$281,000**. CD 2/11—ENR 2/19.

CONTRACTS AWARDED

Calif., Los Angeles — Bd. Pub. Wks., City Hall, sanitary sewers and appurtenances in Laurel Canyon Blvd., to Bebek & Berkich, 5025 E. Slauson Ave. **$214,028**. CD 2/27—ENR 3/4.

Ind., Anderson—City, J. R. Heckman, drainage comr., Court House, tile and open ditch, Chesterfield drain, to Burke Constr. Co., Anderson, **$130,853**. Est. $139,895. CD 3/7/45—ENR 3/22/45.

Mont., Harlem—City, sewers, sewage plant, outfall sewer, to I. Johnson, Glasgow. **$134,592**. Bids 3/1.

N. C., Roanoke Rapids—City, D. A. Shearin, clk., Sec. 1, 23,000 lin. ft. 15 to 48 in. storm sewers and appurtenances to Wm. F. Bowe & Co., Augusta, Ga. **$98,000**. Bids 3/11. CD 2/26—ENR 3/4.

●**N. Y., New York**—President Bronx Boro, 851 Grand Concourse, Zone 51, M storm water relief sewer, appurtenances from southerly side E. Tremont Ave., through land acquired for sewer purposes to southerly side Westchester Ave.; across Westchester Ave. at point about 285 ft. east of Blondell Ave. and through the Westchester yard of New York City Transit Sys. to Eastchester Rd. at a point about 150 ft. south of Haswell St., then in the easterly side of Eastchester Rd. to point about 140 ft. north of Haswell St.; constructing storm water relief sewer, appurtenances in easterly side Eastchester Rd. from point about 140 ft. south of Banard St., with an overflow chamber and connection from existing sewer in Eastchester Rd. at point about 10 ft. north of Poplar St. etc., to Nicholas DiMenna & Sons, 1525 Blondell Ave., New York, Zone 61. **$1,220,385**. Bids 3/12. CD 2/19—ENR 2/26.

Ore., Portland—City, City Hall, unit of intercepting sewers Columbia Blvd. to Guy F. Atkinson Co., Cascade Bldg., Portland. **$671,600**. Low bidder withdrew bid. CD 2/11—ENR 2/19 under LB.

Wash., Bellingham—City, City Hall, to C. V. Wilder and Clint Dawson, Bellingham, Broadway sewers, **$369,500**; Happy Valley trunk sewers, **$145,500**; Silver Beach trunk sewers, **$112,000**. Grand total $627,000. Bids 3/22. Awarded 3/8. CD 2/26—ENR 10/16/47.